



Published on the 15th of each Month by

THE INDIA RUBBER PUBLISHING CO.

No. 192 WORLD BUILDING, NEW YORK, U. S. A.

JNO. R. DUNLAP.**H. C. PEARSON.**

Vol. 5.

OCTOBER 15, 1891.

No. 1.

SUBSCRIPTIONS: \$3.00 per year, \$1.75 for six months, postpaid, for the United States and Canada. Foreign countries, same price. Special Rates for Clubs of five, ten or more subscribers.

ADVERTISING: Rates will be made known on application.

REMITTANCES: Should always be made by bank draft, Post Office Orders or Express Money orders on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Post order, payable as above.

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Trade supplied by the American News Co. and all its branches.

Entered at New York Post Office as mail matter of the second-class.

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*Illustrated.

The India Rubber World.

WITH this number THE INDIA RUBBER WORLD begins the third year of its existence and opens its fifth volume. In calling attention to this event, we are prompted to depart from the custom of exchanging stereotyped pleasantries, and to ask the attention of our readers to a phase of our work and its relation to the present commercial and industrial condition of the trade, which we think merits the thoughtful consideration of the foremost men engaged in the industry.

In all trade journalism, no success has ever been scored which was more instant, more substantial, or more lasting than was that which attended the establishment of this journal. Within the few years preceding, three separate attempts had been made to establish a rubber paper, but they failed signally; and previous to the time that the present proprietors took hold of this enterprise, it languished for something like two years in the shape of a mere promised appearance, which was generally regarded with a kindly eye, but the substantial men of the trade feared that its practical realization would never come to pass. It was with some hesitation, therefore, that the capital and the energy necessary to establish a trade journal were embarked in this undertaking. But when the decision was made the work of presenting the enterprise was conducted with an energy and determination which was only equalled by the cordial recognition and manly approval which was extended to it by our influential firms in every part of the United States.

With its first issue, THE INDIA RUBBER WORLD scored a success which was unparalleled, and those who read it in its early numbers will recall vividly the meed of generous praise that was showered upon it in the shape of kindly letters of congratulation and encouragement from every quarter of the globe. The months have rolled into years since those early days of eager effort and uncertain anxiety as to what the future might bring forth; but we have now reached a point in our career when it may be safely said that the existence of a legitimate field of usefulness for such a journal has been proved, and that we have been permanently established as "an arm to the business."

In the accomplishment of such a work, a constituency of constant and appreciative readers has of course been indispensable to success, and has furnished the very cornerstone on which the publication rests. We have indeed been surprised and gratified at the number of our regular readers, and at their unusually wide distribution to every part of the civilized globe. But while readers are absolutely essential, and while the income from subscriptions is important financially, there can be no doubt that it is to our ad-

advertising patronage, so generously extended at first and so appreciatively maintained since, that the possibility of such a publication as THE INDIA RUBBER WORLD has been realized. There are scores of advertisers who count themselves fortunate in having availed themselves of our pages, and the file of our correspondence is weighted with testimonial letters acknowledging benefits that have been derived. These are sources of special gratification, in that they prove that we have performed a use, and that the paper has been recognized as an authority and a profitable medium for the announcement of what is to be advertised between the manufacturer and the buyer. But aside from the commercial uses of our advertising pages, the support extended to them has accomplished an indirect result the value of which to the trade can scarcely be overestimated.

At the time that THE INDIA RUBBER WORLD was launched, no other important industry in the United States was so little known as the rubber trade, and it was a source of constant surprise to discover how few persons realized the importance and extent of the business. People generally regarded it as an unimportant little industry, which was confined chiefly to the manufacture of patented specialties, toys, some rubber-lined clothing and principally rubber boots and shoes. There was no source of authority, no definite information that could be obtained anywhere, and rubber manufacturers habitually wore such a cloak of silence and mystery about their business that mankind at large was disposed to regard every rubber factory as something in the nature of an infernal machine which was liable to blow-up and wreck the community at any moment. No more striking evidence of this could be asked than was supplied in the absurd stories about rubber manufacture, rubber trusts, etc., which continually floated through the daily press, and which still confuse the public mind with an inadequate appreciation of the character of the business.

But in this particular, THE INDIA RUBBER WORLD has shed a flood of light where before all was darkness. Ever since its publication began extracts from its pages have found their way into the technical and daily press all over the world, and month after month ever since the day of its publication an aggregate of 60,000 complete copies per annum have been systematically distributed to firms all over the world, wherever there was a chance for the sale of rubber goods, and wherever there was the need of some definite information with regard to the commercial phases of the rubber industry. The result is to-day that rubber-goods dealers of every class are familiar with the character, general proportions and importance of the industry; have recognized its products as a part of the staple merchandise of

commerce, and have introduced its specialties and extended their sale where before they knew nothing of the business. How much this work, which has been peculiarly our own, has extended the sale and use of rubber goods, is of course an indefinite proposition. But the statistics show a wonderful increase in the volume of the business, and there can be no doubt that the unparalleled growth of the rubber industry, as compared with any other in our growing country, may be attributed in large measure to the enterprise and intelligence which rubber manufacturers have made it possible to reflect in the trade paper which is their representative and spokesman.

As a special instance of notable accomplishment in this direction, we can claim exclusive credit for having taken the initiative which induced the United States Government to institute an inquiry into the character, extent and possibilities of the rubber trade in every market of the world where there is a United States Consul; and when these reports are published in book form, as they soon will be, and through our pages the results are simplified and made clear, who can tell the far reaching effects which this alone may accomplish in the extension of the rubber business of the United States?

We are indeed so much gratified with the substantial results attending our work, that we may be pardoned some little felicitation over it. For surely it may be said that no industry has ever had a more creditable journalistic representative; that no trade paper has ever printed more original matter of interest and value to its special constituency; and that no class publication has ever had a more careful or a more appreciative constituency of readers. We are however conscious of the fact that THE INDIA RUBBER WORLD has only been possible through the cordial approval and support of the influential houses in the trade; and in the last analysis, therefore, it is to the patrons of the paper that the success of our work is in reality due. Hence it is that we cite what has been done, as a work which appeals to the honorable pride of every man in the trade who has contributed to the up-building of what has been described as "one of the most creditable and valuable trade papers in the country, and doing more than all else to extend the sale and use of rubber goods."

Reasons for Feeling Cheerful.

THE rubber manufacturers appear to be in good spirits just now, judging from the interesting collection of interviews with some of the leaders in the business to be found elsewhere in this issue of THE INDIA RUBBER WORLD. If they are about to enjoy a good season of trade it certainly is no more than they are entitled to, for

everybody knows that the rubber-men haven't had the world in a sling, for several years past, at least. What with crude rubber rising in price at inopportune times, with disturbing reports one season of short crops and another season of a monopoly by Vianna, with the new habit of summer lingering in the lap of winter until people learn to go without rubber clothing, the rubber manufacturer has had cause for not always appearing in a hilarious mood. But now that rubber enough is in sight for all practical purposes, at prices which cannot hurt anybody, it happens fortunately that the country is in a better position for buying manufactured goods than for some years past. It only requires a winter of the orthodox old-fashioned sort to put every maker of rubber clothing and boots and shoes in the best of humor with himself and all the world beside. Well, it is more reasonable to predict a cold winter than one of any other sort, so that no excuse exists, for this month at least, for not making the most of the good prospects for the rubber trade. Even if we shouldn't have a harsh or wet winter, the probability is that a large stock of seasonable goods will be worked off during the remainder of the year, for the supplies accumulated in the hands of many dealers during the recent mild winters have become in most cases pretty well exhausted.

A good effect of some recent back-sets in the rubber trade has been to teach both manufacturers and dealers a wholesome degree of conservatism, as shown in the care with which raw materials have been bought, stock turned out and dealers' supplies chosen. As a result there is no appreciable overproduction of goods, the goods now offered have been produced at a cost admitting of a reasonable profit, and nobody has unsalable goods in stock. The few failures in the rubber-manufacturing business during the year have cleared the atmosphere, so to speak, leaving the trade in a more healthful condition because of the elimination of the weaker factors.

All the conditions now being so favorable it were not unreasonable to expect that the social sessions of the rubber manufacturers at their occasional dinners will be particularly agreeable affairs this winter, there being no anxiety over the state of trade to tempt any of the fraternity to "talk shop" across the table. The pleasures of association will not be lessened by the thought that while thus seeking wholesome recreation the members will be affording newly-fledged editorial writers on the newspapers a target for practice in fierce denunciation. Just as teething children are given rubber rings to try their gums upon, it seems that each newspaper writer, as he begins to use the "we," must needs test his strength upon a "rubber trust." Happily the able editorials on this topic harm nobody, while the unselfish rubber-man is pleased to have afforded the journalist a text.

In the enjoyment of any good fortune which may be theirs this year the rubber-men may congratulate themselves that it is at the expense of nobody else. There is always this source of satisfaction in their trade. People are free to buy their goods or to leave them alone; the manufacturer must take such share of the trade as may come his way and be content therewith. If his sales are

large he has the satisfaction of knowing that it is because the whole people are prosperous, and not that he has profited through the misfortunes of others.

A Little Knowledge Dangerous.

THE newspapers have spread it over the country and indeed over the world that Vianna has failed. They have also enlarged upon the help that the drop in the price of crude rubber will be to the user of rubber goods, and therefore the careful retailer (the smaller he is the greater his carefulness) is demanding lower prices. Were his information broader he would have no such expectation, and for this reason, rubber goods in all lines have been reduced and reduced in price until the margin of profit is extremely small, and this too, not on the basis of 90-cent rubber, but at the old price that obtained before Vianna's "kiting" began.

The retailer believes that the manufacturer made a profit when rubber was nominally at 90 cents per pound. He also thinks that the manufacturer now makes an added profit in the difference between the 90 and 65 cents for the raw material. This is, however, a great mistake.

The asking price to be sure was 90 cents, but very little rubber was sold at that figure, for the manufacturers refused to be bled to that extent. Indeed Vianna's failure was due to the fact that he could not sell at the prices demanded. It should therefore be apparent to the dealer that prices cannot go lower, and that their careful reading of the market reports in business papers will be of little value to them in purchasing, unless they turn to and study the whole complex situation that confronts the manufacturer.

What is the Trouble?

ONE of the leading shoe papers publishes a note about shoe-goring which opens up quite an interesting field for discussion. It says:

"A substitute is needed for rubber-cement to hold the gores while they are being 'stitched in' fine Congress shoes. In making rubber-cement naphtha is used to cut or dissolve the rubber, and this naphtha in the rubber-cement, when used on gore, destroys the rubber in the gore when it comes in contact with it. This simply makes the best of gore non-effective. An old custom-upper fitter says he never knew cement of any kind used on gore for custom shoes, but in fine-shoe factories the girls have to do for 8 cents what would in a custom shop be considered a good full day's work, and rubber-cement is the 'quick sticker' that enables them to do this, and at the expense of damaging and often destroying the gore. If any one can furnish the required substitute, we think we can put him in the way of disposing of large quantities of it if he will communicate with us."

Now it does not seem to us that the case is exactly proved. A great variety of solvents of rubber have been tried, and naphtha has been found the best that is anywhere within reach.

All rubber-cements contain it, indeed, most rubber goods manufactured to-day in the line of boots, shoes, clothing

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and druggists' sundries depend upon rubber-cement, which contains naphtha, for their making-up.

The most durable goods in the world have the seams joined by a rubber-cement and they last just as long at those seams as elsewhere. To go even further than this, one of the best gorings ever made was formed on a double-texture principle, with rubber between the textures, which was put on with an ordinary knife-spreading machine in the form of a rubber-cement, the solvent for which was naphtha. This goring had wonderful lasting properties and was very largely used. Of course, wherever cement is used it is necessary that the naphtha be driven out of the gum as soon as possible after it is in place. It may be that these pieces of goring are put in place so quickly after being cemented, that a certain part of the naphtha is confined and acts as a solvent upon the pure gum threads, thus destroying them. It seems, however, that this could easily be overcome either by a more careful drying of the cement or by allowing the shoes to stand in a warm draught that would be sufficient to volatilize what remained of the solvent.

Is the Rain-Maker the Rubber-Man's Friend?

FOR the past few weeks it has been dry the country over, and when it is dry and fine no man or woman wants rubber clothing; so short-sighted is human nature that there is a general feeling that they never will want any more. This, of course, makes business dull for the manufacturer and, while it has not been seriously thought of, it has been jokingly suggested that a syndicate of rubber-clothing men be formed to engage the services of some successful rain-maker, with the idea of furthering the interests of the rubber-clothing business. It is to be supposed that, were this done, the whole scheme would be managed with the astuteness for which this branch of trade is noted. In other words a day dawns bright, clear, and warm; the feminine shoppers, assured that no protection against the elements is needed, sally forth in their best raiment and are in the midst of the day's enjoyment, when the rain-maker explodes his dynamite and the shoppers suddenly fall. At once there is a rush for the rubber stores, and gossamers and rubbers are purchased in large quantities; not alone by the ladies, but by the men in summer suits, the dudes in immaculate apparel, and even the policemen and teamsters. So far, this would be a direct advantage to the rubber-man.

There is, however, a background to this roseate picture which must not be ignored. The bright days with their modicum of hot sun have introduced dusty streets, wilting flower-beds, and shrivelled lawns; all of which make the sellers of rubber hose, hose-reels, and sprinklers exceedingly cheerful; for, with the advent of this weather, the family man drops in for fifty feet of hose, the cities send in extra orders for hose-stand use, and this branch of business thrives. It is therefore probable that a syndicate of hose-men, finding their business spoiled, would either subsidize or possibly, driven to extremes, would dynamite the rain-maker before he had a chance to dynamite the atmos-

phere. However this may be, it seems that the rain-makers are beginning to claim success, and if garden-hose manufacturers are wise, they will either have laws passed that shall make rain-making an impossibility, or will erect a huge umbrella that will cover the territory in which their trade lies.

Are Business Men Ever Hypnotized?

FIRST in the Trenton newspapers, then in the New York dailies, and last in those of Boston, were published somewhat lengthy articles upon the alleged hypnotic powers of the late secretary of the Star Rubber Co. The gist of the information furnished is that Mr. Bell was accustomed to mesmerize an employé in his factory, and to do it thoroughly and successfully, simply as an interesting experiment. It is said also that he gave exhibitions of his power before a learned society in Philadelphia. It is then hinted that it is probable that he used this same faculty in securing endorsements on paper. A Boston paper even goes so far as to say that he stated that wherever he was it would make him wealthy. That there is a deal of nonsense in this sensational report goes without saying. Mr. Bell was never a man who made careless remarks, and that he said such a thing as quoted above no one who knew him even a little, would for an instant believe. In addition to this had he been using this power for business purposes he was too bright a business-man to have allowed it to be known that he possessed the power at all; and beyond all this is the actual fact that the men whom he had dealings with were cool, clear-headed business-men, and were not of the stamp who are subjects for mesmerism. Indeed, as long as this black-art has been known successful subjects have only been found among the ignorant, nor is there a case on record in which business-men have ever been dominated by others possessing this power.

Utilization of Waste Materials.

AMONG the achievements of modern invention those which have effected the utilization of waste and refuse matter take very important rank. Conspicuous examples of this are the uses made of cotton-seed, now a product of the cotton crop that has enormously increased its value; the conversion of the waste of gas-works into aniline substances and other by-products now indispensable; the distillation of wood-alcohol in charcoal-burning; the conversion of sawdust into useful articles; the use found for coal-screenings as fuel, and for foundry-slag as building-material and as fertilizers. All these things were formerly either permitted to cumber the ground or to escape into the air or water, often to the annoyance and detriment of the neighborhoods about the scenes of operation. This process of utilization of waste may be expected to go on until some use is found for everything that is left over in every process of production, which will thus lead up to some subordinate productive process which will make the original work more worth while than ever, instead of detracting by so much from its resultant value in conse-

quence of the encumbrance of the waste and cost of removing it.

In the rubber business particularly has the art of recovering waste been brought to a high degree of perfection. There was a time when rubber-scrap, old boots and shoes and waste of all kinds, vulcanized or unvulcanized, went under the boilers, or over the dump. To-day every pound is saved and has a market value. This does not prove, however, that there are no wastes in the rubber business to-day, but they are growing less and less, and the fewer they are the more of an exact science is this manufacture. In this line as in others we may look forward to the time when there will be no such thing as refuse; when nothing will be thrown away. Inventors have, therefore, a fertile field in considering, whenever they see anything that is now wasted, what use it may be put to. Among the great wastes which we may soon expect to see utilized may be mentioned the millions of feet of hydrogen-gas that now annually pass into the atmosphere in the coke-producing regions. It ought to be an easy matter to collect this gas and employ it for fuel or motive power in the neighborhood, either in manufacturing or for heating purposes in centres of population near by. The great economies thus effected in the disposal of various forms of waste concern the entire people, for the saving decreases by so much the cost of production, and consequently of living.

There Can be no "Pure-Rubber" Goods.

THERE are people who talk glibly of rubber goods made of pure Pará. The bicycle tire is "pure," the shoe is "pure," and so down the whole list. Now rubber bands are sometimes made of pure Pará. What else? Nothing. In fact if they were pure they would be practically useless. The shoe would so readily stretch that it would drop off the foot. As the gold dollar needs a little alloy to prevent its rapid wearing away, so the compounder puts in a little whiting, or litharge or barytes, or one of the many other adulterants in vogue. Of course too much of any one adds to weight and is hardly right. Shoddy cannot be called an adulterant. The old shoe is taken and a practical elimination of its impurities is made, and like the alloy in the eagle it forms a practical amalgamation with the crude making the goods at once cheaper and more desirable for actual use.

A French Inquiry for Our Rubber Goods.

THE publication in the last issue of THE INDIA RUBBER WORLD of an article suggesting the advisability for seeking a market in France for rubber goods of American manufacture has been followed by the receipt of the letter below given, from a rubber dealer in Paris, to which the attention of our manufacturers is called:

TO THE EDITOR OF THE INDIA RUBBER WORLD: As a new subscriber to your interesting paper I wish to ask a favor. I am doing business for India-rubber manufacturers, and am on this account quite well acquainted with that business. I read in your issue for September (page 322) an article headed

"A Market for Rubber Goods in France" and find that I am entirely of your opinion. I wish to ask, if you hear of any good firm in the United States which will undertake to make fine cut-sheet such as the Messrs. Macintosh and also Moseley, in Manchester, England, are making, that you let me know their address, that I may apply for their agency. I am well known to buyers. I believe that I cannot get information through a better medium than your paper. Thanking you beforehand for your trouble, I remain, yours respectfully.

Paris, France, October 2, 1891.

It will give pleasure to the management of this journal to render any service possible in placing our manufacturers in communication with our correspondent whose name, for obvious reasons is withheld for the present.

Is Brook in Australia?

A GENTLEMAN well-known in the rubber trade recently met one of the staff of THE INDIA RUBBER WORLD and said to him:

"Have you found out where Mr. Brook is yet?"

"No," was the reply, "have you?"

"I can give a pretty good guess," he replied, with a look of mystery.

"For publication?" asked the scribe.

"If my name is kept out of it I have no objection."

"Your identity shall be kept secret," was the promise.

"Very well. I know a man who had extensive dealings with Brook, unknown to the business world at large. This man is not a rubber manufacturer, and is not known in the trade at all. He is a close-mouthed, scheming sort of fellow, and one who when he does speak says something. I had a talk with him not long ago about Mr. Brook and affirmed that I believed him to be dead. He, however, scouted the idea, and said that to his positive knowledge Brook was at this time in Australia, in disguise, and under an assumed name. You may believe it or not, but I tell you it is so."

Mr. Converse's Latest Gift to Malden.

FOLLOWING his gift of a beautiful public library to the town of Malden, Mass., the Hon. E. S. Converse, of the Boston Rubber Shoe Co., has made a donation to the same town which will enable it to secure a hospital. The cornerstone of the proposed new building has been laid since the last issue of THE INDIA RUBBER WORLD. A little over a year ago the Malden Hospital Society was organized with fifty-two incorporators. Mr. Converse donated ten acres of land for the site, and later gave \$6750 towards finishing the east ward of the hospital. In addition to this, \$35,500 have been contributed by other persons, and as a total estimated cost of the building is \$37,735, there now remains a surplus of about \$4000 as a nucleus for a fund out of which to finish the building. Mr. Malden is president of the board of trustees of the hospital, and the cornerstone was laid by him.

In an official report on American products in Italy the United States Consul at Milan, Mr. George W. Pepper, writes: "I understand that India-rubber shoes made in our country have now a large sale here, because they are superior to those imported from France or Germany."

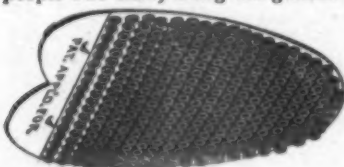
New Goods in the Market.

TO MANUFACTURERS AND PATENTERS:

It is our aim to embody in this department descriptions and illustrations of all the latest novelties introduced in the market, to the end that jobbers, retailers and buyers of rubber goods generally may look here for information as to everything new that each month or season brings forth. Manufacturers and patentees are, therefore, most cordially invited to co-operate with us in making the department as complete and attractive as possible—the distinct understanding being that no charge whatsoever, either direct or indirect, will be made for these publications. Our reward will come through giving our readers valuable information; and that will be reward enough if manufacturers but give the information freely and in all cases at the earliest practicable moment.

In forwarding descriptions of new goods, be careful to write on one side of the paper only; be brief, but always write enough to give the buyer a clear idea of the article you offer; give your full address, plainly written; and in all cases send a small illustration or wood cut if you have one.

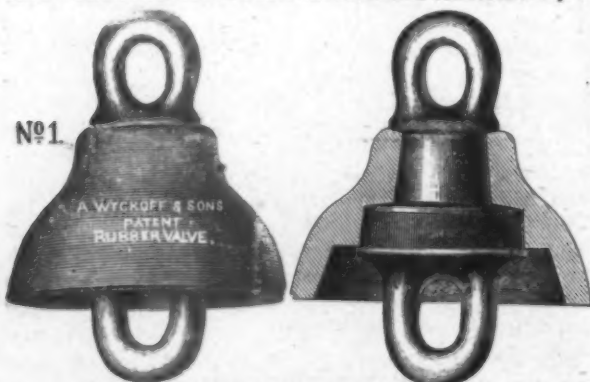
IT is in the invention of little conveniences in every-day life that the American excels. Anything that will add to the comfort of the masses is eagerly sought. To the thousands of people who hurry along the granite or brick sidewalks of the



great cities of this country, to the host of weary clerks who stand behind counters on hard floors, which grow harder and harder as the day wanes, to the general run of Anglo-Saxons who strike so solidly and positively on their heels when they walk, a boon is offered in the shape of a simple little article known as the heel cushion. That it makes walking easier, takes the jar away and lessens the daily fatigue, has been fully attested. The illustration here given shows what the cushion is. Further than that it might be added that it is simple, practical, and cheap; that any one can apply it to his shoes, and that it is a genuine relief in the direction in which the relief is needed. Manufactured by C. J. Bailey, Boylston Street, Boston, Mass.

Rubber Valve for Chain-Pumps.

AMONG the many important mechanical applications of India rubber is its use in pumping apparatus. The general advantage which this material possesses is the positive and certain expansion. The first of the two cuts shown in this connection repre-

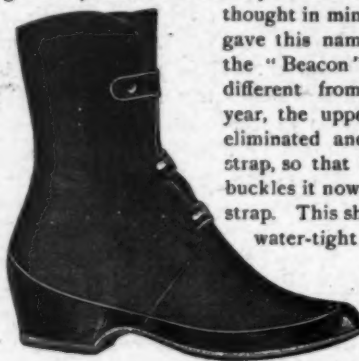


sents Wyckoff's Patent Rubber Valve ready for use. It is pointed out that it has no caps, nuts or screws to run fast or get out of order. It has a flexible bearing edge and will fit, if required, an uneven tube, to draw water by suction as well as lifting it. Among other advantages claimed is that this valve

is easily and quickly expanded without the use of wrench or hammer. The second cut shows the manner of expanding the Wyckoff Rubber Valve, which is to wind a small strip of leather or any other suitable material around the link, just above the lower shoulder and under the rubber. The rubber and link are so constructed that it is impossible for the strip used to expand the valve to ever work out or even get out of place. The manufacturers guarantee the use of first-class material for the link and rubber of the best quality for the valve. Made by A. Wyckoff & Son, Nos. 101-111 East Chemung Place, Elmira, N. Y.

The New "Beacon" Gaiter.

THE Beacon is a name that attracts attention and leaves a good impression the country over. It was perhaps with this



thought in mind that the manufacturer gave this name to the shoe known as the "Beacon" gaiter. It is a little different from the "Beacon" of last year, the upper buckle having been eliminated and its place taken by a strap, so that instead of having three buckles it now has two buckles and one strap. This shoe is high cut and has a water-tight fold which makes it im-

pervious to moisture to the top. Made in women's, misses', and children's sizes, and packed in cartons. Misses' and children's are made either with heel or spring heel. Manufactured by the Boston Rubber Shoe Co.

Two other new styles now manufactured by the same company are illustrated here. The self-



acting rubber shoes are so styled because they have a steel spring in the shank, enabling them to be put on or taken off without the use of the hands. The shoe here shown is made by the company who originally introduced the self-acting shoe, and is made up in their best style. It has a plain rubber upper

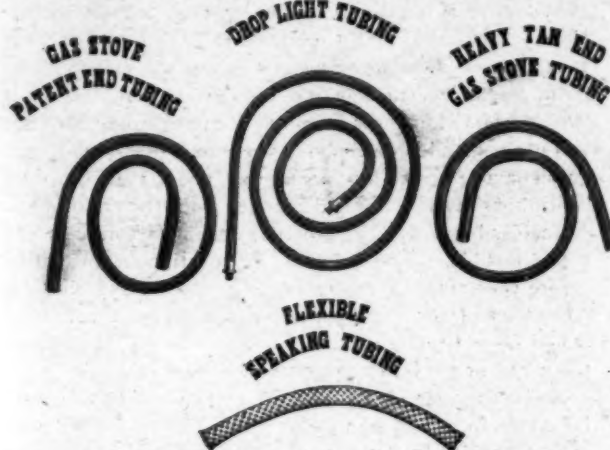


and a cotton lining, the plain upper being more in fashion this year than the figured. Of late the tendency in rubber shoes has been toward plain instead of ornamented uppers. Of this class is the Wyoming, which is a plain shoe, of medium weight, with drab lining, made to fit any leather shoe except the extreme styles. It is a trifle heavier than the well-known Lenox, and is made in women and misses sizes, the latter in heel and spring heel.

Gas-Stove Tubing.

THE variety of styles in which gas-stove tubing is made for the American market is shown in the illustration herewith. Of the varieties shown is first the heavy, tan-end gas-stove tubing. In this the rubber tube is on the inside, and is covered with a gas-tight compound, outside of which is a flexible-woven fabric. The ends of the tubing are made of a special compound of tan-colored rubber. There is also shown what is known as drop-light tubing, with male and female fittings, with regular metal ends. The tube consisting of rubber, a gas-tight compound, a

wire insertion, and an outside flexible braid. Caldwell's patent end gas-stove tubing is also shown. The patent end is a flexible-rubber fitting, moulded upon the brass connection, that is screw-threaded and all ready for attachment. This is made of fine red rubber. Another style shown is the flexible speaking tubing, which is made in larger sizes; is used in offices, and has also been put into the more modern carriages and coaches, as a ready means of communication with the driver. This is made



of a rubber tube, a spiral wire strengthener, and an outside braid. The ordinary tan-tubing, made of a length of rubber tubing, covered with an impervious gas-tight compound, is also brought to a great state of perfection nowadays. The gas-tight compound will not harden in cold weather nor soften under ordinary heat, and by careful experimentation has been made thoroughly fire-proof. Manufactured by the American Tubing and Webbing Co., Providence, R. I.

New Magazine Shooting-Vest.

SPORTSMEN will doubtless be interested in a view of a new article for their use, manufactured by the Fairfield (Conn.)



Rubber Co., which is given in the accompanying illustration. Some of the advantages claimed by the manufacturers are: The capacity for holding forty-eight shells, thoroughly protected; automatic delivery of each shell directly into the hand; rapid and positive delivery of successive shells; proper and comfortable distribution of the weight; neat and substantial appearance; durability and reasonable cost. It is impossible in the use

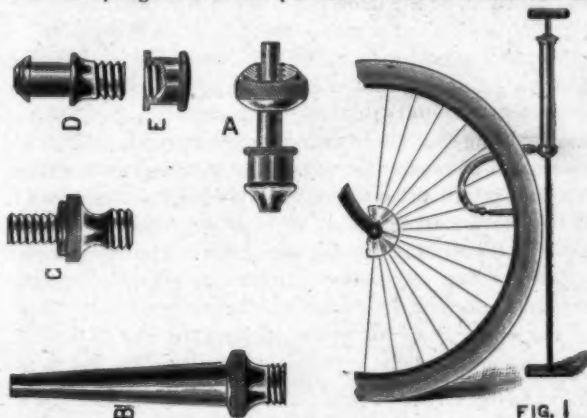
of this vest to lose the shells. Each side of the vest is supplied with four elongated, vertical pouches. Within the lower end of each pouch is secured a tapered brass tube, split up at the bottom. The shells are introduced within the pouches from the top, and each pouch is capable of holding six shells. Various sizes are manufactured, and liberal discounts are offered to the trade. The patentee is W. B. Wheeler, a brother of the treasurer of the Fairfield Rubber Co.

Brief Mention.

THE Goodyear Rubber Manufacturing Co. are placing upon the market a new water-bottle which is selling excellently well. Ordinary bottles have a metal stopper fitting into a metal neck and where the metal is attached to the rubber trouble usually ensues, as hot water, and cold sometimes, will destroy the cement. The bottle, which has only been on the market three weeks has a hard-rubber stopper, fitting into a soft rubber neck. In this case there can be no separation of the parts and an annoyance is thus removed.

A New Pump for Pneumatic Tires.

THIS pump is designed for the quick, easy and perfect inflation of the tire before the start. This it accomplishes without delay, annoyance, or fatigue in a twentieth of the time usually required with the smaller pumps. The cut, Fig. 1, sufficiently illustrates the Pump. The couplings and their uses may be explained as follows: Coupling *A* is firmly secured in the end of the strong rubber tubing attached to the pump. It has a tapering air-tight male friction-joint and an interiorly-threaded, milled union-nut for instant and secure connection to either of the couplings *B*, *C*, *D*, which have female friction-joints and male screw-threads to correspond. Coupling *B* at its tapered end will fit the rubber valve-tube of the Featherstone or almost any other pneumatic tire. Coupling *C* fits the metal coupling of the Wainwright and also of the Michigan Cycle Company's tire. Coupling *D* is for the permanent insertion into the air



inlet-tube of any pneumatic tire. Coupling *A* may be instantly connected to it for inflation, after which screw-cap *E* may be used for the double purpose of preventing escape of the air and for exclusion of dust while on the road.

The pump-barrel and valve-chambers are of brass, well finished and nickel-plated. The valves are of aluminum. It is mounted on a steel rod with iron base, both japanned. All the couplings are figured at their full size; they are well finished and nickel-plated. Each pump will be supplied with coupling *A* and one of the others, or with the pair *D*, *E*, without extra charge, and orders should specify which is desired. Special couplings will be made to order if required. The pumps are usually retailed at \$5 each; the couplings, *A*, *B*, *C*, each, and the pair *D*, *E*, at 25 cents; *D* or *E* separately, 15 cents each. Manufactured only by Codman & Shurtleff, No. 13 Tremont Street, Boston, Mass.

F. H. ROBINSON, of De Long, Betts & Co., has returned from a trip through New England and reports an excellent business.

A Study of the Weather.

AT this season rubber-men look for stormy weather, and their hopes and misgivings about the volume of business that they can get keep pace with the barometer. So far the condition of the weather has not been all that could be desired. A long, rather dry, summer, commencing early and ending late, has been the condition that has confronted the rubber-men. Inquiries at the Weather Bureau at New York as to the probable outcome of the winter so far as rain, snow and bad walking are concerned, fail to elicit any satisfactory conclusions. Sergeant Dunn last spring in a moment of enthusiasm in the idea that he had conquered the science of meteorology made bold to predict that we should have a short, cold summer. Old Meteorology, it seems, became deeply offended at the idea that his plans could be forecasted so readily. Before the summer girl had planned her campaign or the summer-hotel keeper had even begun to dream of the golden showers he once in a great while gets, the Old Man of the Weather started in to set this prediction at naught.

He gave us hot weather in May, and in June he made humanity fairly wince. He ought to have closed that branch of his labors; according to rule, by September 15, but he did not, keeping up instead his fire long after the straw hat was called in, or the dude had come out in his autumn rig. Merchants who had come to town to get their share of an expected "boom" found the place of cooling drinks doing a thriving business with a crowd of people who had foolishly left the country thinking it was time to give up pleasure for business. There are no more long-term predictions made at the Weather Bureau. If the Observer in charge is asked any foolish questions of that character he looks at the thermometer, which all summer has belied his predictions, and sadly says he does not know. He has gathered no information as to the squirrel's coat, the thickness of the chestnut-burr, the strength of the goose-bone, the depth of the winter home of the woodchuck, or any of the old-time prognostications so thoroughly believed by our ancestors in foretelling the quality and quantity of a winter before them. The Weather Bureau believes in adhering to business on the old forty-eight hours plan, on which basis it has made its reputation.

In detail, the rainfall for the past month has been much less than the average. On the Atlantic coast the usual equinoctial storm passed off at sea, and ignored us altogether. There were some heavy rains on the Texas coast at that time and light rains extended northward, but actual drouth was the rule over a vast expanse of the country. Later in September heavy rains prevailed in Texas and in the trans-Missouri region. No continuous rains, however, had put in an appearance in California or in the section east of the Mississippi, and since March 1 the deficiency in the precipitation had become very marked. Except on the South Atlantic coast this deficiency ranged from 50 to 75 per cent. Since October 1 the principal rain-storms have been in the Atlantic Ocean, where they do no good to India-rubber dealers. There has been considerable snow in Dakota and also some rains in the Ohio Valley. These

have continued at intervals, but at present there is little or no snow anywhere, with an outlook for continued fair weather and a slightly lower range of temperature.

Pioneers in Continuous Insulation.

WHO first discovered bona-fide insulation continuous in its form is a question now agitated among electricians. It is stated that it occurred at a date earlier than 1825, but the medium for such insulation was certainly not gutta-percha, which was not brought to England until twenty years afterwards. Its use for telegraphic purposes was not demanded until about the same time. The telegraph came along in a practical way, about 1848, but little continuous insulation was demanded until the era of deep-sea cables began and gutta-percha was the factor that made them possible. The demand for continuous insulation before 1825 must have been for coils used in experimental purposes and for these cotton, or almost any other fabric would have been sufficient, the point being to separate the wires, or not let them touch each other.

About the year 1848 the use of gutta-percha as an insulator took form, and manufactories in England and America were started. In America the factory of the American Gutta-percha Co., of Brooklyn, N. Y., was built, the company being the predecessor of the Bishop Gutta-Percha Co. In England, in 1848, William Barlow and Thomas Forster took out patents for the coating of electric-wires, although they were by no means the discoverers of this mode of insulation. They simply improved some crude method that then existed and which the discoverer had not thought worth patenting. They combined the gutta-percha with cowrie or New Zealand gum and flowers of sulphur. Their compound was eight parts by weight of gutta-percha, one part of sulphur and another part of gutta-percha in powder. This compound was heated to 120° Fah. in a kneading machine.

Charles Hancock was at that time also experimenting in insulation. He boiled the gutta-percha with muriate of lime, passed it between heated cylinders and sifted on it rosin. This he claimed made complete insulation. He also mixed gutta-percha with shellac and borax. After this the patents came thick and fast on both sides of the ocean.

Rubber Factories in South America.

THE Singer Manufacturing Co. continue to enjoy a large export trade. They have lately furnished an equipment of their sewing-machines for a large boot and shoe factory in Venezuela. Central America has given a good demand for their manufacturers' machines, particularly at Salvador. To a rubber-goods factory in Bolivia they have sent a shipment of machines by the way of the Amazon, and some rubber factories in the Argentine Republic have also favored them. The foreigner has now got into the habit of "indenting" his orders to this company, which boasts of the largest factory of its character in the world.

Patented Uses of Fossil Flour.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Under the title of "Fossil Flour in Rubber Work," you publish quite a lengthy article in your valuable paper for August 15. We do not consider the same as new to the rubber trade, as our Mr. A. B. Jenkins, under date of October 5, 1880, patented the use of diatomaceous silica or infusorial earth, mixed with India rubber and gutta percha, or either, and such other matter as is necessary to vulcanize it, and in a vulcanized compound containing diatomaceous silica, or infusorial earth, or either. The patent clearly defines the use of same for different purposes. The proportion of diatomaceous silica or infusorial earth, and sulphur to the rubber and gutta percha compound, or either, depends upon the use to which the improved material is to be put. There is a full description of the formula for elastic-valve packing, which shall be indestructible in the presence of steam, water, hot or cold, oils, hot or cold, acids, and other destructive matter. Then again, a full description is given for the proportion for pump valves and other articles, now commonly made of vulcanized rubber.

Regarding valve work, we wish to say that we have used silica in the manufacture of valves for the steam-pump manufacturers for nearly ten years. Now your article mentions particularly that "valves made of it have been subjected to the severest tests." We will agree with that assertion, for we believe that our valves made from it have been subjected to severer and harder tests than any ordinary rubber compounds were ever subjected to, and have given the best of satisfaction. We call your attention to this patent, as we do not believe you would care to lead any of your readers to infringe. Yours respectfully,

JENKINS BROTHERS.

New York, September 10, 1891.

Rubber at the American Institute Fair.

AT the American Institute fair now in progress in New York very little is to be seen in the display of India rubber goods. The only distinctive exhibit is that of the Waterbury Rubber Co., who display a mammoth line of Sphincter hose. Very few other articles in which rubber forms a distinctive part are to be seen at the fair. A bathtub which hinges in the centre so that it can be folded into the size of a small table, has strips of rubber in the joint. Peck & Snyder have a toy missile designed to be fired from a small gun tipped with a rubber cup which by means of suction adheres to the object aimed at, and does not harm the furniture or other object. The H. W. Johns Asbestos Manufacturing Co. have a fine display of asbestos goods, giving the visitor at the same time an object lesson in the crude material.

The display in the Institute fair of manufactures in general fails to do credit to a metropolitan city of so important a rank as New York. Nor does it compare favorably with the earlier exhibitions, when the American Institute was an important factor in the industrial progress of this country. There is a natural reason, however, why manu-

facturers should be no longer impressed with the efficacy of fairs as a means of introducing their wares. There are a dozen rubber-goods stores in New York, open all the year, each of which is an instructive and entertaining fair in itself, illustrative of the wonderful progress in the uses of India-rubber. The same is true of most other lines of manufacture. People as a rule are interested in fairs only when something new is to be seen at them, and it would be hard to show New Yorkers anything in the rubber-goods line which cannot be seen daily in the rubber stores. Many country people attend the American Institute fairs, however, and it might pay our rubber manufacturers, after all, to be better represented at them than has been the case in recent years.

Rubber-Goods Stores Abroad.

AMERICAN travellers in Europe remark the great number of rubber stores in London, few of them of the metropolitan proportions seen in our cities, but making up in number what they lack in size. They are chiefly located on cross-streets. The humid atmosphere of London calls for a great sale of clothing and rubber goods, and the small stores spring up and into the same sort of importance as the corner-grocery and other necessities in our own metropolitan life. In Paris there are very few stores, probably on account of the different climatic conditions. The mackintosh ordinarily sold in England is looked upon by the tourist class as far inferior to the American manufacture in shape and style, whatever may be its general qualifications. Of course Americans believe that their own rubber shoes equal and go one better over anything made abroad, and point for evidence to the statistics of our growing exports of such goods. In Canada, by the way, about all in the shoe line that we can get over the tariff wall is our superior style of Zephyrs, something which the native manufacturers find it a hard matter to copy.

Growing Uses of Asbestos.

THE list of asbestos manufactures is getting to be a long one. It is now used for paints, colors and varnishes, roofing, building-felt, sheathing, steam-pipe and boiler coverings, felting, locomotive-lagging, wire-cloth, theatre curtains, fire-proof rope for fire-escapes, cord, twine, yarn, tubes for glass-works, rugs and mats, all sorts of steam-packing, gaskets, stove-linings and furnace cements; compounded with caoutchouc it makes a superior gasket, packing-ring, faucet and axle washer, acid-proof tubing, dust-guards, electric-battery cells and all description of electrical work liable to exposure to accidental flame. The asbestos companies obtain their material from Canada, where there are extensive mines, although it is not unknown in this country. A high tariff keeps out foreign goods, especially of the better sorts, and a strong combination among the home companies keeps the consumer from getting his needs at any sum that would in any way lead to the ruin of the manufacturer.

THE RUBBER TRADE OUTLOOK.

Manufacturers Unanimous in Pronouncing This a Good Season for Business.

THE RUBBER CORNER SCARE OVER.

THE rubber-goods manufacturers seem to have great reason to be satisfied with the present status of their trade, and with the outlook for the future, as shown by the expressions of representative members of the trade who favored THE INDIA RUBBER WORLD with their views, which are printed below. The manufacturers no longer have any fear of finding themselves at the mercy of the speculators in crude rubber; the purchasing capacity of our own people seems to be on the increase, and the demand for our rubber goods for export is steadily growing. On the whole, therefore, it is not surprising that the expressions of the rubber-men should be almost uniformly of the most encouraging character. The interviews follow:

* * *

GEORGE F. HODGMAN, President of the Hodgman Rubber Co.: "I think the outlook for a very good business would be very favorable if the weather would become of a more seasonable character. About September 1 we began to receive a multitude of orders, and we had all we could do until after the middle of the month, when business became dull and it has continued so ever since. The fact is that no one cares to buy a rubber garment during this warm weather, which has been altogether without rain; consequently the retailer is waiting to sell the goods he ordered in September before he will venture to get more. Stocks near the consumer were very small and are yet so, but people have learned to be very conservative and are not much disposed to give speculative orders. The equinoctial storms have missed us, but it is in the nature of events that we should soon enter a season of bad weather, and then the retailers will distribute their stocks and be in the market again with a renewal of orders, and this, I think, will make a very satisfactory termination to what has been so far a poor year for the rubber-clothing trade, and will, perhaps, bring it up to a handsome average. Collections are fairly good, considering the warm weather, which does not allow of rapid sales by the retailer. I think the decline in the price of crude rubber will help manufacturers, as goods have been sold very nearly at cost, and a larger margin was necessary for a healthy business, and for this reason there ought to be no change in the price of manufactured articles. We have had a good season in our specialties. In detail, business is excellent in the West, not worthy of special mention in the South, and very good in New England."

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A. SPADONE, President of the Gutta Percha and Rubber Manufacturing Co.: "We are doing a fair business, but there is no 'boom.' Goods can be said to be moving freely towards the consumer. With us, as with every one else in the mechanical-goods line, the dull season is approaching. During the summer months we have our maximum of

trade; in the fall trade begins to get dull, and in January, February and March we have the minimum season of the year. Prices are not advancing at all but we are now, since crude rubber is cheaper, getting along very easily. There is a fair margin of profit in manufactured goods now, but it is not by any means unreasonable. We manage by taking advantage of the market when crude rubber is cheap to obtain a large stock and then get along comfortably, only it is the customer who has the advantage. We cannot obtain any higher prices when crude goes up; the peculiarity of the demand is a substantial check in that direction. In the rubber market there is no scarcity of the lower grades, the medium grades have a little better tone, and Pará has gone up a few cents. Vianna seems to be in the market again, and I think has hypothecated quite a large stock in London, Havre, and New York. Houses associated with him here are now proving to be excellent holders, but then all the manufacturers are very well stocked and there can be no special tension placed on the situation for some time to come. You are aware that we lately enlarged our factory, and are now employing more men than we ever did before, still we are not up to our full capacity. We could increase our force considerably should the occasion require it. In general the outlook is a good one for a steady, fairly-paying business, and times in the rubber trade are reasonably satisfactory to all."

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F. M. SHEPARD, President of the Goodyear Rubber Co.: "We feel very much encouraged with the outlook that is before us for better times in the rubber trade, and believe that they will be better than for several years past. Crude rubber is now down to a reasonable price, and a fair margin of profit can be obtained for manufactured goods. The rubber-shoe business is in excellent shape, all the manufactories working at full capacity, and we are obliged to decline many orders. In this view of the case the continued pleasant sunshiny weather has not been a disadvantage, for if the business were accelerated to a point to which wet weather would bring it we would have a great annoyance in declining a large number of orders, and explaining to our customers the reason therefor. It is a difficult matter for a manufacturer to enlarge the normal capacity of his works to meet an emergency. Skilled workmen are necessary, and they can be found only very gradually. Then the subject of lasts cannot be disposed of in an hour. There are only one or two last manufactories in the country, and they are generally full of orders. The maple wood has to be carefully shrunk and fashioned, which takes months. There are metal lasts which might not be open to these objections, but changes in the manufacture of rubber goods are necessarily of a very slow and conservative character and they have not yet been adopted to a large extent by rubber-shoe makers. Yes, everything is in a very satisfactory condition, with every prospect for a continuance."

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J. D. VERMEULE, President of the India Rubber Glove Co.: "I presume that the consensus of opinion you have

gathered is of a very favorable character, and that there is not much to be said in addition. We are running our mills exclusively on orders in the shoe line, and that trade is excellent. Large shipments have been going and are continually going West to anticipate the closing of Lake navigation and higher freights. There is only one way to describe our clothing and sundries business: it is larger than ever before known in the history of our company. We can say little about collections, as it is our custom to credit the class of customers we serve until December 15, when their notes become due. Our export business has been good, fully up to our expectations, which are larger year after year. The South American trade is growing very well. We ship to Spanish American points through local commission houses. We have had a good business lately with Canada in anticipation of an advance in the tariff on wool-lined goods from 25 to 35 per cent. On all-rubber goods there is no change in the tariff there and our business in that line continues of a uniform character. The West is the best section of the United States for our trade at present, reflecting the results of the mammoth crops there. All hands seem to have good stocks of crude rubber, and the fear of high prices in that regard has passed away, and we have no longer the annoyance of watching rubber manipulators. While the large concerns have been very fortunate during the past season in escaping the effect of the carefully-laid plans to corner crude rubber, it has been a matter requiring much watchfulness and one that we would not care to see continued."

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THEODORE E. STUDLEY, manager of Goodyear's downtown store in New York: "Altogether business is in a very healthy condition. There is no 'boom,' or speculation in any line. Retailers are buying simply for immediate needs, and are not disposed to anticipate wants. Our travellers are out and sending in good orders. Every one seems to be confident of the future. Collections seem to be good, no trouble being experienced in that direction. We have a nice business coming to us from Western New England and New York State, and everywhere first-class goods can be sold readily at fair prices by any one making the proper effort."

* * *

CHARLES A. HOYT, of the India-Rubber Comb Co.: "There is only one thing to say—that business cannot fail to be good. It is not so at present, for the continuance of the very warm weather has restricted the movement of goods, but the general prediction of better times is based upon a well-established fact—heavy crops and a positive demand for them. The pockets of the farmers will be well lined with money, for the prices they are now obtaining for their wheat and the higher prices later on will most assuredly give them an excellent profit. They will be independent for the next twelve months to come, and a channel of prosperity will be deep in ruts from the farm to the city, and from the small towns to the metropolitan centres. Nothing but some calamity, such as an earthquake or a pestilence, will turn aside this prosperity. While business

for the past three or four weeks has been dull on account of the warm weather, our sales have been more than the average. We notice a growing trade with South America, and in fact with all Spanish American countries there is a good business. There has been no trade with Chili for a long time. With European countries we do little. With the Sandwich Islands and Australia we do a very fair business by way of San Francisco. These are all, however, out-ranked by the demand in this country which we are now watching in its inceptive stages, and from which we are led to expect so much."

* * *

J. D. CHEEVER, President of the New York Belting and Packing Co.: "There is very little to say, and it is all one way. We are doing a good business and expect to do a great deal better. Our factories are running full. The Okonite business is excellent and growing. Everything looks prosperous. Details would be monotonous for there would not be variation enough in them to make them interesting." [One of the heads of departments in the warehouse of this company made the remark that the company were doing three times the business they did a year ago at this time.]

* * *

A MEMBER of the trade in New York who prefers not to have his name mentioned said: "Rarely has there been such a combination of events happening or about to happen to make a prosperous season for the community in general, and in which of course the rubber-men will participate. In the first place the basis of our prosperity is a substantial one. The story of the crops is a hackneyed one, but realization of all prophecies with regard to their fruitage is near at hand. Our wheat crop, for which we undoubtedly shall find a foreign market, is large and as we shall in the nature of things obtain a good price for it, the farmer will have plenty of money. Of corn, which had a bad-weather gauntlet to run, we have a great plenty, enough to sell abroad, enough to make into a lot of provisions which you know we are now selling also abroad, and which alone in its assured volume is considered a full measure of a year's prosperity. There is plenty of fruit and of everything else to eat. Now what is to be the result of all this? Every farmer in the Northwest and every farmer from Ohio to Kansas and down to Tennessee will first get a little money to pay off his debts, then a little for his necessities, then for an extravagance or two, music for the family, a trip to town, a few dollars spent there, a visit to some metropolitan centre, and so on. Then gatherings will take place, church fairs will be more plentiful and more in every way will be devoted to the froth of life. All this will take place in an extensive region where for a number of years past every dollar has looked as large as a cart-wheel, and where the rubber shoe, if it were worn at all, was made to do duty for many seasons; the mackintosh was unknown, garden-hose only existed in the imagination, and the household articles, such as syringes, water-bags, and the like, were loaned from neighbor to neighbor. A great many rubber articles are luxuries and are only bought

when the people have money to spare. It is too long a story to tell you how this wave of prosperity which is surging up in the West will gain in volume growing daily stronger and stronger until we feel the effect of it in every corner of the East. The railroads which have been in miserable shape financially are getting better and better and now iron-men are going to them and offering to sell them on long credit for improvements and renewals what they absolutely need in order to avail themselves of the full measure of a great business for which their present facilities are inadequate. This is in face of widely-published reports of the deplorable condition financially of two or more of them, which, as the fact became known, almost precipitated a panic in Wall Street. So much for the West; now for the South. Here conditions are not so hopeful. Too much cotton was raised last year of a poor quality. This year the outlook is better—not so much of it, with an improved quality. At present river navigation is difficult, and excessively warm weather for the season prevents a distribution of goods. There are, however, good signs from the South which may develop into better times by Christmas. Something is going on in Texas. Money seems to be plenty there and a good demand for goods is being noticed. On the Southern Atlantic coast, which by the way has always been a laggard from the time of Pocahontas, is picking up. Collections are reported good there, no more failures than usual are reported, and as it has been growing for the past few years in its demand for rubber goods, it will probably go ahead faster now. It has become our winter Saratoga and Newport, and the luxuriant habits of our travelling population have unconsciously set a pace for the native, something like that between the tortoise and the rabbit, but getting there all the same. On the Pacific coast there is a very good feeling. With Australia a semi-monthly steamship line is promised, and already there are resident Australian buyers in San Francisco. Our rubber-men ought to be able to extend their business in this direction. The settlement of the Chilian troubles has also been a good thing for the Pacific coast. Locally the manufacturers in San Francisco are moving with one accord in promoting every interest they have in common. The export business in rubber goods is growing very fast. Large orders are going to France, Turkey, Germany, Russia and England. These exports speak volumes for our American manufacturers, who seem to have little difficulty in competing with foreigners. In Germany, you know, they advertise mechanical goods as 'made after the American style.' In Sweden there is always a discussion going on as to whether they will buy of the near-by Scotchman or the American. The new tariff in Mexico may cut down our sales in the future, as duties on rubber manufactures in some lines have lately been doubled. As a whole, crude rubber is down, while the demand for all sorts of goods will be large, and if the weather will only turn in our favor we cannot help doing well."

* * *

J. C. BALDERSTON, Agent of the National Rubber Co. :
"To my mind, there has never been a better outlook for

a large fall and winter trade. Bear the fact in mind that I speak from the standpoint of a rubber-shoe man and know little about other kinds of rubber goods. Of course much depends on the weather, and no man can tell what that will be. The Northwest is the great consuming portion of our country, and as that section has wonderful crops, there will be plenty of money, and a consequent good general business. Instead of patching up the old rubber boots and shoes, the farmer will feel that he can afford a new pair. With the general prosperity the retailers will forbear to press their absurd claims for lower prices because of the decline in the price of crude rubber. That their claim is absurd a few figures will conclusively show. In March, 1890, the price of fine Pará was 68 cents, and the discounts on rubber shoes were 38 and 6. In the same month of 1891, with rubber at 70 cents the discounts were 45 and 5. Then rubber advanced until it touched 94 cents, and yet there was no rise in the price of manufactured goods. The goods are to-day, therefore, selling at a lower price than when we were having 68-cent rubber."

* * *

HON. E. S. CONVERSE, Treasurer of the Boston Rubber Shoe Co. : "I believe it is admitted that the stocks of rubber goods are light with retailers, although jobbers carried over quite a remainder from last season. Whether the general prosperity helps the rubber-shoe trade is a question in my mind. The consumers of rubbers are the middle classes. If, therefore, times are good, the small-salaried clerk buys a pair of cork-soled boots, and gets along without rubbers. But if times are hard, a pair of rubbers serve to hide the holes in his old boots, as well as keep out the wet. In spite of this view, however, everything points to a good fall and winter trade. We have had three poor winters, and a real one is about due. Last year, to be sure, we had a portion of a winter here in the East, but it was a poor one for trade in the West. There is now a good demand for shoes. Our European business grows slowly but steadily, and if we have an old-fashioned winter we shall have nothing to complain of."

* * *

HENRY A. CLARK, Treasurer of the Eastern Electric Cable Co. : "General business is bound to be good. The prosperity of the farmer will mean that more towns will have electric lights, more buildings will be erected, and all that helps the insulated-wire business. Then, too, there is the mine-work, both of which lines have grown to large proportions with us, and are going to call for a deal of material this year. We have of late made no push for trade, yet for August of this year we did 50 per cent. more business than in the same month a year ago. This last September, we had the biggest single month's business we ever have had. Now as this trade came to us, I look at it that they wanted the goods and could use them, and I expect more of the same pleasant experiences all through this year."

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CHESTER J. PIKE, of the Wales-Goodyear Rubber Co. :
"I don't claim to know what will be, nearly as well as I

know what now is. We already have the 'boom,' and are straining every nerve to fill orders. It ought to last, too, for stocks are small everywhere. A man called on me the other day who was right from the 'rubber country,' and he said that two weeks of bad weather would clean out all the stocks carried there. It looks as if this year was to be a repetition of the best of good years, 1879."

* * *

JAMES BENNETT FORSYTH, General Manager Boston Belting Co.: "I look for a full year of unusual business activity. The great crops, that have been so safely harvested, are not the only encouraging features of the business outlook. The lower prices of rubber are a great help to the manufacturer. As quotations are to-day the prices are about right. The last year with us was a good one, chiefly because we were able to make a small profit on our goods, and the volume of our business was large. The coming year ought to be, and doubtless will be, much better. The big crops are an old story with us, for the owners of the elevators who saw it in prospect sent in orders for belts months ago, and we knew what that meant. Our factories ran night and day for nearly two months filling orders, quite a considerable portion of which were to supply elevators that had been lying idle for two or three years past. So I look for excellent business for certainly a year to come. It may be that next year's elections will cause a dull season, as I have noticed to be the case in the past. I do not believe, as many do, that this is caused by any general fear of disaster from political changes, but business men put time and thought upon political matters, that at other times would be spent upon their regular business."

* * *

B. T. MORRISON, Treasurer Reading Rubber Manufacturing Co.: "Carriage-makers predict a great year in the manufacturing of carriages, and that means that lots of carriage cloth will be used. In rubber clothing I look for a large trade on good goods. The call for poorer grades of clothing is lessening, and that I interpret as a very healthy sign. The retailers are learning to impress it upon their customers that fine goods give the best satisfaction. A well-known Bostonian, a dweller on Beacon Street, and who dresses up to the 'top notch,' is wearing this fall a box coat, that is really a mackintosh. It is cut in the style, is loosely lined, has only the thinnest of pure-gum surfaces on the inside, and he is delighted with it. Of course, no one knows that it is a mackintosh, and it wouldn't do any harm if they did, but that simply goes to show which way the tide is setting. The cutters in rubber factories have been educated so they can now give tailor fits, and as a result many will wear mackintosh overcoats as a regular thing, whether it rains or not, and the year before us is going to develop a great deal of trade to suit this class of buyers."

* * *

E. H. RAND, Manager Newton Rubber Co., Boston: "I cannot see any reason why we should not have a general business 'boom' the country over. Indeed it has already

begun. The machine business is good, and that makes mechanical rubber goods sell. With the big crops, and the prospect of plenty of money, comes a revival of the agricultural-machine business, and that too helps our line. Yes, it all points toward a notable season for business, and almost every one is feeling well over it."

* * *

S. LEWIS GILLETTE, Manager Clothing Department American Rubber Co., Boston: "The dry weather has not done altogether as much damage as some claim. It has allowed us to catch up with our orders, which is no small source of satisfaction. I think the outlook is excellent. The fall rains are bound to come, and it looks as if the 'just and unjust' would have money enough to buy mackintoshes this year. The demand will fully equal the supply. The clothing now carried by even small retailers is such as they would have thought too fine to touch only a short time ago. Now they carry these high-priced garments in stock, and find a market for them. From one small town in Maine we have just booked an order for twenty mackintoshes, the average price of which will be \$10 each. The whole town never owned more than three or four such garments before."

* * *

E. H. PAINE, Agent of the American Rubber Co.: "The outlook for the rubber-shoe business was never better. We are already short of many kinds of goods, which is remarkable at this time of the year. Reports from our branch houses in Chicago and St. Paul are very encouraging, and make a fine showing. Stocks are light, and as the law of supply and demand regulates prices, there is a possibility of an advance before the season closes. I notice one feature that is refreshing; there is a strong tendency toward better grades of goods."

* * *

A. RANDOLPH, Manager of the Stoughton Rubber Co.: "I have just returned from the West and am feeling particularly well over trade prospects. The weather, to be sure, has been a trifle too bright for the clothing trade, but we have been busy in spite of it. There is every indication of a 'boom' in business for the whole of next year, by which time, the largest crop ever raised in this country will have been turned into money. The knowledge of this makes the Western merchants very cheerful. Orders have crowded in this month until we don't know which way to turn. Will it rain? Yes, and when it does rain it will pour. Already there has been a big snow-storm in Minneapolis, and snow is three feet deep in Montana."

Foot-Ball Shoes Growing in Favor.

THE demand for foot-ball shoes has been something unprecedented. Manufacturers say that the call has trebled since 1885. No shoe called for must be so tough and elastic as the article worn by those who play foot-ball. A favorite style is to make the upper of light-colored French calf, made with or without the ankle pad, as spikes or rubber soles are not allowed in foot-ball. Leather cleats running across the soles are extremely popular and useful.—*Lewiston (Me.) Journal*.

The Durability of Elastic Goring.

HAVING recently been making tests and investigation as to the durability of the rubber threads in goring, I have arrived at two conclusions:

First—That there is something besides oil in all dongola tannages which destroys the rubber. In proof of this I find in all Congress shoes brought me to have a new goring inserted that the old goring is stained a yellow or copperas color through and through where the stitching is, this being the case with goat dongola that appeared almost devoid of oil, as well as other kinds having more oil.

Second—That the rubber does not rot or decay from natural causes nearly so soon as has been supposed. I am confirmed in this conviction by the fact that I have never seen the rubber threads break in the *middle* of a shoe gore. If they gave way from natural decay why would they not break in the centre as well as at the sides, but of all the old goring I have examined the rubber threads were as good as ever, except where they broke at each side. In January, 1887, (nearly five years ago) I bought some cotton goring. After using part of it I found it beginning to "bag," so I was afraid to use any more and laid it aside. Recently, however, I found the best quality of the same manufacture giving away, and, through curiosity, got out the old cotton goring and began to test it, and, to my surprise, found it perfect as ever, even after subjecting it to the severest tests.

Another error of the trade seems to be that in the so-called better manufactures of goring, the rubber threads will not draw up in the centre and let the woven webs slip loose when they break at the sides. I have seen all kinds give way, and invariably in the same manner. It would seem as if no goring can be made that will hold against the deleterious tanning substances used in dongola, and the oil necessary to keep it soft until worn out. These deleterious substances (perhaps they are acids) may not destroy the rubber in so short a time as oil would; hence the use of "dry" dongola has been taken up as a preventive of baggy gores, but I have before me goring from one to two years old, taken from shoes (to insert new), after from *one to six weeks' wear*, the tops of which were "dry" dongola of good tannage. "Dry" dongola can never be a success with the great mass of wearers. To keep it soft and smooth requires such care in blacking and oiling that not one man in a hundred will think of doing it, and nine times out of ten, when oiling is attempted, it will be put all over the tops, and so get to the rubber.—HENRY NEWCOMB, in the *Shoe and Leather Reporter*.

Storm Trousers of Rubber.

A NEW invention by a citizen of Worcester, Mass., is thus described by the *Evening Gazette* of that city: "Mr. Clarence R. Macomber has recently patented a clever substitute for a rubber boot, and one which is a vast improvement in appearance and also in comfort for ordinary wear. The storm trouser, as it is termed, is in appearance a trouser leg cut off a few inches above the knee.

It is worn over the trouser and is made large enough to prevent any creasing. The material used is mackintosh cloth. At the bottom is cemented a gaiter of a new design, also of mackintosh, which fits close over a rubber worn on any ordinary shoe. The gaiter is so fastened that a water-proof joint is made and the appearance of an ordinary trouser and gaiter is retained. All the freedom and grace of ordinary trousers is obtained with the absolute exclusion of moisture. With a mackintosh coat or ordinary overcoat it is impossible to discern that storm trousers are not an every-day pair of trousers.

"Every one has suffered the discomfort of wet trousers, from the knee down, and everybody who has worn rubber boots knows the unpleasant dampness which arises about the feet. The storm trouser remedies both these evils. In horseback riding they make an agreeable substitute for leggings, both in fair weather and foul. In cold weather they make a protection from the cold, especially while riding or driving. The dealers say that undoubtedly there will be a large demand for them and express an impatience to have them put on the market. The cost will not exceed that of ordinary rubber boots."

More About Cellulose.

THE "coffer-dam" in naval construction is a structure around the opening or hatches through decks and across the bow of the ship. It forms in the latter case a part of the collision bulkhead. The space within is generally from fifteen to twenty-four inches wide, and of a height just sufficient to extend above the water line. After these coffer-dams have been added to the cruisers, the choice of a substance for filling them had to be considered. So difficult was this choice that the architects gave it up. Consequently the coffer-dams were left unfilled, the idea being that, should a shot pierce them, the hole could be stopped up with anything convenient, such as mattresses or blankets. The ideal substance for filling these coffer-dams is one that will by its automatic expansion, when wet, choke up the hole. The U. S. Navy Department has determined to make an experiment with cellulose for this purpose. If the substance proves satisfactory it will be immediately applied to all the vessels of the new navy. In foreign navies several ships have already been supplied with cellulose for the purpose in question. The tests have not been entirely successful. Chief Constructor Reed, of the English Navy, who has made substances for filling coffer-dams his special study, contends that woodite, and not cellulose, is the ideal material. The only substance made in this country which at all resembles cellulose is made from cedar brush.

Cellulose is made of cocoa-nut by Torrillion and Co., at Chamalieres, in France. It contains meal and fibre. The fibre has the natural color of the cocoa-nut, and the strength of horse-hair. The meal, which is the cellulose proper, is also of the peculiar brown color of cocoa-nuts, and is in fine grains. Cellulose absorbs water, and by its swelling provides the safest possible obstruction. On account of its

low specific gravity, less than that of cork, it is valuable for life-belts, and may be used in large quantities to keep a seriously-damaged ship afloat. Cellulose compressed and packed in the coffer-dam of a ship to form a leak-belt does not emit any unpleasant odor, and does not decay for two or three years. When penetrated by a projectile it is not ignited, does not give off any disagreeable smoke, possessing, in this respect, a great advantage over rubber armor. If dry loose cellulose be ignited it gives out white smoke. Combustion in cellulose can be controlled by compressing the substance. When compressed it is difficult to ignite, and if damp it cannot be ignited. The fibre is loosely spread on a table seven feet square, and in a layer about two or three millimeters thick. This forms a nest for the meal which is smoothed off by hand to a thickness of four or five centimeters. Rectangular blocks fifteen to twenty centimeters long and ten to fifteen centimeters wide are laid off by hand, and the compartments are then packed with these blocks. Boards with weights are laid on top of the blocks, and a man by his weight on the boards compresses the cellulose beneath. This process is repeated on every fourth or fifth layer, until the thickness of the layers is as great as desired.

A Canadian Rubber Exhibit.

IN the extensive industrial exposition which is being held at St. Johns, New Brunswick, the India-rubber display of Messrs. Estey & Co., situated on the east side of the gallery, is a prominent feature. The crude rubber is shown, and its development into various stages of industrial usefulness is illustrated by specimens, showing the application of the material to manufacturing and domestic purposes. A big block of crude rubber is shown, then the vulcanized tissues, dental rubber (unvulcanized), and so on. Samples of electric-light wire tubing, used for insulating purposes, and vulcanized rubber for carriage-tops are also included in the display. Something new and useful for farmers and miners is a rubber boot with a substantial leather sole. A little tailor-made rubber coat is a model of art. It is made especially for the exhibition. The firm display a sample of their fine hose, which will stand a pressure of 500 pounds. The famous seamless-rubber belting is here, as are great air beds and press-blankets, though not for use in conjunction. Something unique is a picture of Charles Goodyear. Beneath the picture Mr. Estey has not inaptly written a translation of the famous words which mark the last resting place of Sir Christopher Wren in St. Paul's—"If you would see his monument, look around."

Steam Communication with Brazil.

THE Brazilian line of steamers from Baltimore has been abandoned, the reason being given that there were so many delays in loading and unloading caused by peculiar laws that the profits vanished. It is not uncommon to see seventy-five vessels in Rio Janeiro at one time waiting for room to unload, and this delay in some instances is so

much as sixty days. Manáos has only one wharf and the use of lighters is almost invariable. On the other hand a new line of steamers is proposed between the United States and Brazil, with Brazilian capital, five first-class iron steamers to be built in the United States. Bids are being invited in Rio Janeiro.

The traffic on the Amazon would seem to be growing at an astonishing rate. The receipts of the Amazon Steamship Co. for the past six months of the present year were only \$3,000 less than the receipts for the whole of 1890. The line is owned by the Empresa das Obras Publicas. Four new ships are on their way to the Amazon, but it is calculated that they will not meet the exigencies of the demand. Meanwhile the company are paying off all their debts in a way directly the opposite of the bond-ridden transportation companies of our own Western country.

Rubber Cash-Mats by the Ton.

THE New Jersey Car Spring and Rubber Co., who own the exclusive right to manufacture cash-mats, report very large sales of those useful articles.

As is well known this unique article consists of a plate of rubber with round-projecting points on its surface, $\frac{1}{8}$ of an inch in diameter and $\frac{3}{8}$ of an inch long, being placed about $\frac{1}{4}$ of an inch apart, the object being to allow of change being picked up with ease, the points naturally placing the coin on end and presenting it in such a position that it can be grasped readily.

The sale of these goods is measured by tons. The company have issued recently a new catalogue of the mats manufactured by them, very complete in detail, and illustrating some novelties. The "signature" mat, in which a man's name is produced in the style of his own handwriting, very much enlarged, of course, is a fad that is becoming popular in business houses. Then there is the "monogram" mat, which can be varied to represent articles of trade, one having been made lately with a druggist's mortar worked in the rubber. A recent variation is the solid-back rubber mat with a red border, the latter adding very much to the beauty of the article. In border mats an extra wearing surface is given in making the edge three-fourths of an inch wide, twelve times that found in ordinary mats.

The nomenclature of mats is too voluminous to be mentioned here, but as given in this neat catalogue it is very instructive, and the rubber-dealer could with its aid, induce considerable trade by leading the customer into new wants which are put forth in a happy manner in the pages of the book.

THE sulphur market is getting into the same position as the rubber market of two months ago. The Sicilian merchants are buying "futures" as far into next year as April, and at present there is no "spot" stock in New York for sale, although some pending settlements may soon release a portion of that stored here. The output of Sicily is about 20 per cent. less than last year.

THE INDIA RUBBER WORLD costs \$3 a year.

The Undeveloped Rubber of Africa.

THE investigation of plants likely to yield the caoutchouc of commerce is being carried out in West Tropical Africa by numerous correspondents of the Royal Gardens at Kew. The field offered there for investigation seems almost limitless, and in recent years a considerable trade in India-rubber has arisen through the exertions of officials and traders who have given attention to the subject. A useful summary of information respecting West African rubbers is given by Captain Maloney in the "Forestry of West Africa." At present the chief rubber-yielding plants on the west coast appear to belong to species of *Landolphia*. These are climbing shrubs with stems four to six inches in diameter near the ground, but separating above into numerous branches which support themselves on the neighboring trees. The rubber of the Gold Coast, known to commerce as Accra rubber, is the produce of *Landolphia* and *Owariensis*, which is probably the best rubber plant in West Africa. The rubber is obtained by cutting off portions of the bark in strips varying in length from three to ten inches. The cuts are made sufficiently deep to reach the latex canals, and soon the crude juice starts out in drops and gathers on the newly-cut surface. The rubber of the *Landolphia* coagulates on exposure to the air and requires no preparation other than rolling it up into ball. "A quantity of milk" says a Kew report, "is first dabbed on the fore-arm of the operator, and being peeled off forms the nucleus of the balls. This nucleus is applied to one after another of the fresh cuts, and being turned with a rotary motion the coagulated milk is wound off like silk from a cocoon. The coagulation takes place so rapidly on exposure to the air that not only is every particle cleanly removed from the cuttings, but also a large quantity of semi-coagulated milk is drawn out from beneath the uncut bark, and during the process a break in the thread rarely occurs."

Another method of collecting West African rubber has been described as follows: The blacks wipe off the milk with their fingers and smear it on their arms, shoulders and breast, until a thick covering of rubber is formed. This is peeled off their bodies and cut into small squares, which are then said to be boiled in water. In European markets such rubber appears in more or less agglutinated masses of small cubes, and are termed "thimbles."

It appears that in some districts, such as the Gaboon, owing to the reckless destruction of the rubber vine, the trade is becoming less every year. In other districts, however, the trade is gradually increasing. Attention has been specially directed to rubber plants in the colonies of Gold Coast and Lagos, and owing in great measure to the interest taken in the subject by Capt. Maloney, the exports from these British possessions rose from nothing in 1882 to a value in 1885 of £69,911, and a constant increase has since been reported. The total rubber exports from West Africa in 1885 were valued at £265,617. Doubtless there are other plants in West Africa from which commercial rubber might be obtained. The Mbungu rubber plant is *Landolphia florida*. This is distributed over the whole

of Central Tropical Africa. There are also several species of *Ficus*, the original genus yielding commercial rubber, the investigation of which might be advantageous.

The produce of the various rubber trees of this part of the world has been made the subject of comprehensive experiments, both at the hands of the Kew directors and in the works of manufacturers, so that gradually a correct understanding is being arrived at with regard to the fitness of each variety for manufacturing purposes. One point on which information of value has been gained is the need of varying treatment of the juice of different trees or vines. Thus the sap of a tree may contain a large quantity of caoutchouc, but the same may be assorted with other principles contained in the same or other plant tissues, which completely modify its character. Experiments conducted by the India-Rubber, Gutta-Percha and Telegraph Works Co., Limited, at Silvertown, show that the juice of the *Ficus Vogelii*, an African plant, does not lend itself satisfactorily to the treatment which has been applied successfully to the *Castilloa elastica*, of Nicaragua.

A most important consideration in this connection was touched upon by Mr. Alvan Millson, commissioner for the Western District residing at Badagry, who reported to the Kew Gardens in 1888:

"So far as I can at present see, West African rubber will never be reliable so long as the natives have the preparation in their own hands. Unless merchants employ reliable men to buy and coagulate the milk, I fear that the trade will be of a very ephemeral nature. Yet, on the other hand, it seems clear, from the large numbers of rubber-giving fig-trees, that a properly-conducted trade would be a considerable source of future prosperity to the whole coast. The present palm-oil and kernel trade may be said to depend upon the continuance of slavery, and is indeed in many ways an injury to the people."

Within a short time an extensive rubber manufacturer in this country informed THE INDIA RUBBER WORLD that his works had discontinued the use of African rubbers, though the quality was well suited to some of the branches of manufacture, for the reason that the expense of removing the foreign substances they contained made the "Africans" cost as much in the end as the best Pará rubber. These foreign substances, it is scarcely necessary to add, existed in the rubber on account of the sheer carelessness—if nothing worse—of the natives entrusted with curing the gum.

Where Barytes is Found.

BARYTES, used to some extent by rubber manufacturers, comes in its purest state from Missouri, although a slightly inferior article comes from Virginia, North Carolina, Illinois, and some mines are being developed in South Carolina. The impure is more or less mixed with quartz grains or iron rust. The mining in the West is chiefly done by farmers in off-seasons who take it out in small quantities and barter it at the country stores, getting for it in this way a small price, as practically it is a matter of small cost to them. A few mines give an uncertain em-

ployment to laborers, the season-lasting only a few month in the year. It has a weight equal to iron ore, and is good for purposes of making weight. Its consumption, the principal part of which is in paints, is steadily increasing. Mexican barytes is of a superior quality, free from all stains, and sells at the mines at about \$5 per ton. Other imported sorts are specially prepared before shipment.

They Say it will Supersede Rubber.

SUBSTITUTES for rubber are constantly appearing and promising to do wonderful things, and are with a few exceptions found to be failures. It seems that nature has tried her hand at the substitute business and been successful in producing a material known as Litho-Carbon, which is thus described by the *New York Commercial Advertiser*:

"Some years ago a sportsman was fishing from the bank of a stream in Texas. At the base of a long pool, a ledge, standing edgewise, crossed the stream, forming a dam over which the water flowed. The sportsman undertook to cross on the crest of this natural dam where the water was shallow. As he carefully walked through the stream he noticed that the ledge was yielding like an asphalt pavement baked in the sun. It was of a dark brown color, and contrasted sharply with the reddish earth on either side. With a stout pocket-knife he cut out a large lump of the clinging brown vein and looked at it closely. It was a mass of sea-shells, held together by sand, covered with an intensely sticky film, of the color of dark brown sugar, and possessing neither taste nor odor. The presence of the shells, which lay thickly in the whole vein, showed that where he stood the ocean had once ebbed and flowed.

"Whatever it was, he could see that there lay before him an enormous supply of this strange, clinging stuff, mixed with sea-shells. Tying the lump in his handkerchief, the prospector proceeded toward camp. That night he tried to melt the mass. It would not yield in the least to any heat he could produce. Weeks afterward, in New York, he tried acids upon it, without avail. So, when he had exhausted his own knowledge, he took samples of his material to chemical experts, wherever he could find them. None of the scientific men could tell him what it was he had found. One day he received word to call on a chemist to whom he had given a small quantity of the matter some weeks previously. In the laboratory he was shown a little heap of perfectly white sand and sea-shells lying on the table, while in the bottom of a glass vessel near by was a quantity of intensely, brilliantly black stuff, of about the density of chilled molasses. This matter, the chemist explained, had been extracted from the combination of sea-shells and sand, by the application of a bath of benzene.

"Quantities of the material were quietly brought to New York and a series of experiments followed, covering a period of more than two years' time. It has been discovered that it makes a most perfect insulator, that it may be used as a paint that will resist the action of heat, salt air, salt or fresh water, gases, or the other influences that destroy the paints now in use; that it will make a perfect

varnish which the ammonia gases of the stable will not tarnish, and that will remain undisturbed under all atmospheric conditions; that it may be rolled into a tissue that is entirely free from odor, and which may be employed in the making of mackintoshes, canvas belting, waterproof tents, etc.; that it possesses peculiar powers of penetration, when applied at high temperatures, enabling it to enter and fill the pores of iron and steel, making these metals impervious to acids, etc., and making common leather waterproof, and that it may be applied to wood-pulp in such a way as to transform that material into what looks and acts like ebony or horn.

"Accepting all this testimony, it will be seen that a revolution is likely to occur in many important fields of commerce. It is possible to saturate a steamship plate in hot litho-carbon and produce a remarkable result. Thus prepared that plate will not be touched by barnacles, can never rust, and will not foul. Covered with a layer of paint made of this matter, a ship, or a seaside house, will permanently resist the action of the atmosphere or water. A portion of the smoke-stack of the steamer *Dean Richmond*, where the heat, by the use of a 'blower,' rises to 800° Fahrenheit, was painted with litho-carbon months ago, and remains undisturbed and unblistered, while other parts of the vessel have necessarily been painted many times. The insulating qualities of the Texas product have been tested variously. It is stated that braided or naked wire, merely soaked in litho-carbon liquid, will be covered with a film withstanding temperatures up to 600° Fahrenheit, and that a very thin film insures perfect insulation. In the transportation of nitrates, coarse burlaps or gunny sacks are used by the million. One of these sacks rarely lasts for more than a single brief voyage, owing to the action of the acids which eat away the fabric. Three of these bags, saturated with litho-carbon, and filled to their utmost with the destructive nitrates, have been lying for months in an importing house in New York, and they do not show the slightest sign of injury, even under the microscope. A common paper bag, soaked in this black liquid, may be filled with milk, water, acid, alkali, excepting the petroleum series, tied up at the mouth with a string, and carried any distance without fear of leakage or injury to its contents. It will be an odd development of household economy when our milk, vinegar, liquors, etc., come home from the grocer's in paper bags. For varnishing railway cars and private carriages, and painting iron bridges, roofs, steamships, houses, etc., this material will neither crack nor blister under any known atmospheric temperature. Careful and practical investigation shows there are thousands upon thousands of acres of the raw material in the State of Texas, the veins ranging in depth from two to forty feet."

THE foreign antimony which finds its way to the New York market has the sulphur in it in such variable quantities that its use is very often prejudicial to good results. It either has too little or too much, and in one case the article is not vulcanized, and in the other it grows hard quickly and cracks. Antimony is rather expensive, but it is one of the best agents used in the manufacture of rubber, and properly used on good material will prolong the life of the article for years.

A Well-Arranged Rubber Store.

THE large new and conveniently-arranged rubber-goods store of Edward R. Rice, of Buffalo, N. Y., is described at length in one of the local newspapers, from which an abstract is presented here with a view to noting a new feature in the arrangement of stocks:

"In the basement is a fifty horse-power boiler and engine, which furnish power to run the elevator and steam for heating purposes; also here are stored the large stock of heavy boots. The first-floor front is given to offices on each side of the main entrance. In the rear are the packing tables and a large open space for the shipping and receiving of goods. The second floor, Mr. Rice claims, is the main feature of his new store, for here he has built what he calls his rack system for carrying staple lines in solid sizes. There are eight of these long rows of racks, or bins, which stand about five feet high and run the whole length of the building. They are so constructed as to take in nearly 3000 cases of rubber boots and shoes, each size, width, and kind being in a separate compartment by itself. This system enables him to fill all orders at a moment's notice, from a single pair of any given size and width up to as many pairs as may be required. On the third floor are stored the fine specialty goods and Woonsocket shoes of all kinds; on the fourth floor, Rhode Island shoes of all kinds; on the fifth floor, arctics and wool-lined goods and lumbermen's 'overs'; on the sixth floor, men's light boots, and women's, misses', youths', and children's boots of all grades; and the seventh floor is given to cheaper grades of goods—job-lots, wool boots, and other findings peculiar to the rubber boot and shoe business."

Turpentine as a Rubber-Solvent.

IN the year 1831 Samuel Guthrie of Sackett's Harbor, New York, first employed oil of turpentine charged with sulphur for dissolving caoutchouc.

Guthrie obtained the compound of oil of turpentine and sulphur by treating crude oil of turpentine with oil of vitriol, letting it settle after the action ceased and pouring off the liquor. This liquor has been repeatedly analyzed and found to contain the sulphur in the same condition as that in which it is found when sulphur flours are treated with oil of turpentine.

Few things that have engaged my attention have cost so much trouble as divesting spirits, or rather oil, of turpentine of the last particle of its resin. My first object was to obtain a perfect and clear solvent for caoutchouc. My second one will appear by and bye. Take sulphuric acid and water equal weights, mix when cold, add a quantity of it to a quantity of oil of turpentine and agitate thoroughly; the acid will become colored by uniting with or clearing the resin; let the acid subside and decant the clear spirit. Repeat the operation until the acid subsides without being discolored. The oil of turpentine thus prepared with warmth and strong solar light, is, I believe, a perfect solvent of caoutchouc. This process is somewhat expensive and troublesome and after a great many fruit-

less trials with various articles, I found that alkalis and alkaline earths, especially lime, would attack resin, but not pure oil of turpentine. On distilling oil of turpentine from caustic lime and water, I found a great deal of resin remaining in the still on the first operation, *but none* at any subsequent one, hence the resin was an adventitious body. I likewise found by the sulphuric test that the oil was pure, and I likewise found that the oil thus purified was not a good solvent of caoutchouc, probably because in distilling the oil, it had acquired water, which it held in combination.—*Prof. E. N. Horsford.*

Curing by Vapor.

I THINK it is a well-established fact that acid cured goods are not a success in this country, although most of the rubber clothing made in England is cured by acids. Eight or ten years ago when there was nothing made in the way of a gossamer, except the old black garment, which one seldom sees now, the writer well remembers what a time he used to have to get goods cured. From the first of November to the first of April, in those days the profits were large, and one did not mind as much if the pieces of coated cloth were somewhat torn. At the present time, however, when the business has gotten down to a basis, where the profits are so small that it is sometimes hard to get a new dollar for an old one, there must be no more torn goods. As a consequence new methods have been adopted. Formerly it was not unusual for a manufacturer of gossamer clothing to have from five to fifty thousand yards of curing tables, which was one of the largest outlays in building a plant, but now he does not require them. Instead, he can use the vapor cure on all starch finished goods, and being most desirable nearly all of the gossamer goods are made that way at the present time, thereby consuming less time. In the old way by sun curing it took the help about half of their time to care for goods, but now, by this method of vapor cure, two boys can cure from five to eight thousand yards per day with no torn goods, and instead of the thousands of yards of curing tables, costing a very large amount, a much smaller sum can be invested, which will accomplish better results.

I hardly think I need enter into full details of how to build a modern curing apparatus; it is simply a box with an opening on each side, near the top, through which to pass the cloth, and a coil of steam pipe in the bottom to heat the bichloride of sulphur which forms the vapor. A shallow earthen vessel containing this is placed on top of the coil of pipe. The vessel should be as near the width of the goods as possible in order that there may be an even distribution of vapor over the surface of the goods. There should be a glass tube leading from the end of the box to the vessel, so the chloride can be put in without removing the cover of the box. I have given the very simplest way of constructing an apparatus. The main point to be considered is to confine the vapor to the box. Some manufacturers put additions on either side of box of some three or four feet of about an inch space, for the goods to

pass through before entering, and after leaving the box. The apparatus should be placed at a convenient distance from the floor on a suitable frame. On one side should be a winding arrangement, and on the other something to hold the roll of goods. The next move is to place some of the bichloride of sulphur in the vessel and turn the steam on to the coil of pipe, and as soon as the vapor begins to form, wind the goods from one roll to another, passing them through the box, the rubber side down. The speed at which you can cure will depend somewhat upon the quality of the goods, and you must trust to experience for good results. As one piece of goods comes off the rolls there should be suitable arrangements to further another piece to the end, thereby saving time, and this is the simple method of vapor curing.

M. L. D.

A New Canadian Rubber Shoe.

DURING the latter part of September an agricultural and industrial exhibition was held in Montreal by the Montreal Exposition Co., recently formed with a view to the holding of annual fairs in that city. It is understood that it was a very successful undertaking. Prominent among the exhibitors were the Granby Rubber Co., whose products are claimed to be "equal to the very best made in United States factories," which seems to be the standard of excellence in the Dominion. One item of the exhibit of the Granby Rubber Co. was the invention of the manager Mr. McKechine, and called McKechine's Ventilated Shoe. "This consists of a small vulcanized tube running down the middle of the front of the rubber, with punctured holes beneath it on the inside of the rubber, whereby the close heated tight sensation of the rubber on the boot or shoe is almost done away with. The invention has been thoroughly tested for over a year and pronounced a success by medical men and experts. It is patented in Canada and the United States and manufacturers in the latter country are now negotiating with Mr. Miner, president of the Granby Co., for permission to use it, subject to a royalty." The other products of the company are militia officers', firemen's and large storm overcoats.

A Tale of Two Dogs.

THERE is a brigand who stands by the wayside and sells little woolly dogs to unwary passers-by. I will not particularize him further than by calling him a brigand. The little dogs he sells are not alive, although they appear to be. They are black, woolly arrangements, about the size of a kitten, and from the back comes up a rubber tube with a bulb at the end of it. The brigand places the little imitation dog on the sidewalk, and then presses the bulb spasmodically. This causes the dog to hop along on the pavement and attract the attention of a person's small boy or small girl, and then, of course, the person has to buy the woolly dog, and pay a shilling for it, although it gets out of order before you are safely home. The small boy, or the small girl, is the one that coerces you into buying it. The dog-seller knows this, and the moment any one passes with a

small boy or small girl the little black dog is put through its wildest antics; that is why I call him a brigand. One day a man came along the street, and at his heels was a coarse-looking brute of a dog, with bloodshot eyes and a general expression of discontent with the world at large in his repulsive face. The little imitation dog was hopping along the pavement as this couple came by. The living dog cocked his eye for one brief instant at the imitation article and quick as a flash pounced on it. There was one frightful crunch that shattered the bogus dog, and then the living animal threw its nose up in the air, with its mouth full of springs and bits of tin, and gave a wild howl of anguish that made its master jump. Which was the angrier, the man with the real or the man with the bogus dog, would be hard to tell, but there was no question who was speedily going to have the advantage.

"I want 'arf a crown off a'you," cried the man with the mechanical dog; "look what your dorg's been and gone and done."

"Half a crown be blowed!" said the other. "Your cursed foolery has cut my dog's mouth all to pieces."

"Sarves him right!" said the man with the mechanical dog. "My dog bites nobody. I want 'arf a crown of you, and that I means to get."

"You and your half-crown!" sneered the other in derision; "your wretched old toy wasn't worth more than sixpence."

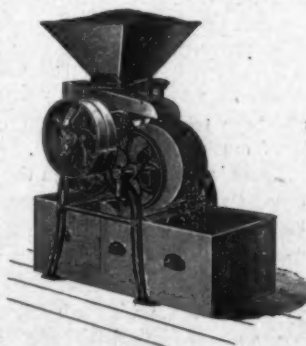
"Looky here, my lively bloke," said the other, "if your bloomin' mongrel had on a muzzle this 'ere wouldn't have happened. Not havin' on a muzzle means ten bob and costs. Now you turns over your 'arf-crown 'ere or I gets a bloomin' peeler."

This arrangement was unanswerable. The dog had no right to be without a muzzle. So the half-crown was reluctantly forthcoming, and the brigand put down another black mechanical dog on the pavement, and doubtless wished for a similar customer that hadn't a muzzle on.—*Exchange*.

Of Interest to Recovered-Rubber Manufacturers.

OF those who have made a specialty of the manufacture of recovered rubber no one problem has given them more anxiety than the best method of eliminating iron from their finishing stock. A variety of machines have been invented and used for this purpose, but the results have not been uniformly successful. The ordinary method has been to run the pulverized stock over a series of magnets which are supposed to gather the iron from the rubber and by a series of brushes to move it to one side. Sometimes this arrangement works and sometimes it does not.

An inventor who makes a machine for separating iron filings and scrap from brass stock, and who has done this successfully on a very large scale, has adapted his machine to the use of rubber manufacturers. It is already in successful operation in numerous rubber mills. Those who are without it would do well to send for a catalogue and description to the inventor and manufacturer, Mr. Ezra Sawyer, No. 33 Hermon Street, Worcester, Mass.



Insulating Compounds from an English Standpoint.

IN America, where electric-lighting is far more extensively made use of than in England, there seems to be a correspondingly greater amount of difficulty with regard to the insulation and preservation of underground wires. This to a greater extent would appear to be accounted for by the almost universal employment in the States of certain bituminous compounds. Although the manufacture of India-rubber for ordinary purposes is perhaps better understood in America than in England, its employment in the former country, for insulating conductors has not made any very great advance. On the other hand, we believe we are correct in stating that the most satisfactory insulations in this country are those which have been supplied with well-insulated, rubber-covered conductors. As an example of the endurance of properly made India-rubber covered leads we may state (with the permission of the India-Rubber, Gutta-Percha and Telegraph Works Co., Limited, at Silvertown) that in the works at Silvertown, the system of underground wires serving an installation of 148 arc and over 1300 incandescence lamps, has been laid down a number of years, and not once during the whole of this period has the slightest repair been necessary.

Our attention has also been called to the electric-light system of Philadelphia, where the conductors are covered with pure Pará rubber, and where as yet, not a single hitch has occurred, so far as the conductors are concerned.

Asbestos fibres are sometimes used alone, round the conductors, which is then protected by a lead or iron pipe. Though asbestos resists the action of acids and heat, the insulation is not good. Its fibrous nature and power of capillary attraction, must render it subject, dealing with it from an electrical standpoint, to the effects of moisture. A mixture of ozokerite and asbestos has been tried, but the difficulty of working these materials into a homogeneous mass is a sufficient bar to the employment of this composition. Another form, consisting of a covering of asbestos braid laid either under or over a coating of India-rubber might certainly for a time possess the good insulation claimed for it, but we fancy that the nonconducting properties of asbestos would lead, in the first case, to the overheating of, and consequent injury to the conductor; and, in the second case, to damage to the India-rubber—on which the insulation of such a conductor almost entirely depends.

Several methods of employing ozokerite has been tried, one of the most familiar being Henley's system of curing India-rubber core in melted ozokerite under pressure so as to get rid of all moisture, the core being then heated in hot ozokerite, which is forced through the India-rubber, so as to stop up the pores. A mixture of ozokerite and India-rubber (called "nigrite" has also been tried, but was found to have too little consistency to be of much mechanical value.

There is much difficulty in the mixing of ozokerite with other materials, so as to obtain a thoroughly homogeneous mass. The melting point is fairly high, and it resists the action of most acids, but it is open to many of the objections which apply to the use of paraffine. We believe it is often used in admixture with India-rubber, but it should be remembered that the mixture of ozokerite, or of any resinous matter with rubber, invariably injures the latter. An application of this nature is all the more to be avoided because of the apparently good results obtained at first, and for a short time, but which are very misleading with regard to the mechanical endurance of the material.

Kerite is used alone round the conductor, or in conjunction with cotton tape or jute, in both cases having an outer protec-

tion in the shape of a lead or iron pipe. It has been very largely employed in the States. Kerite is a mixture of India-rubber, oxidized oils, and other compounds. Being vulcanized, as it is called—in reality oxidized—it stands great heat and, in common with many compositions, the insulation is at first high.

The nature of gutta-percha is so well known that it is needless for us to dwell upon its qualities at any length. Second only to India-rubber in its adaptability for the purpose of covering conductors, both from a mechanical as well as electrical point of view, it is in many respects far inferior. Excellent as most classes of gutta-percha are when kept in an even temperature or under water, they become unreliable when exposed to sudden and extreme changes from heat to cold, and from wet to dry, and lose, under these conditions, most of their mechanical attributes, and even in the best qualities the conductor is apt to lose its centring when the leads are exposed to more than normal temperatures.

No doubt under favorable circumstances and with careful treatment electric-light leads insulated with well-protected gutta-percha should not be used. Bad metal joints in the conductor (a common weakness in electric lighting systems) are more to be dreaded where the leads are covered with gutta-percha than perhaps in the case of any other material. The failure of the gutta-percha cables laid down for a certain electric-lighting installation on a large scale bears out our opinion.

India-rubber is, in the opinion of many, not only the best insulating covering for electric-light conductors, but some might almost go so far as to affirm that, putting aside questions of a commercial character, it is the only one which should be employed for this purpose.

While eulogizing India-rubber, it must be understood that we refer to material properly prepared, and unstinted as to quality and quantity. The occasional failures of rubber-covered leads are entirely due to careless or ignorant preparation, or to the employment of material indifferent as to quality and of insufficient quantity. It has not infrequently come under our notice that middlemen have obtained contracts for supplying and putting up conductors for a price at which no manufacturer could even make decent leads. The result of such work must inevitably be speedy collapse of the system, perhaps fire.

Some reasons for giving the preference to India-rubber are:

- (a) Its ready adaptability to the covering of wires, a feature absent in most, if not all other materials, excepting gutta-percha.
- (b) It possesses very high insulating qualities.
- (c) It is elastic and very tough, consequently it suffers but little from pressure, torsion or blows, and conductors covered with it can be safely and easily taken up, re-laid or moved about at will.
- (d) It withstands abnormal temperatures.
- (e) It is not affected by sudden and extreme changes from wet to dry, or from heat to cold.
- (f) It can be employed with equal security under cover or out of doors, overhead or underground.

The thickness of India-rubber with which it is necessary to cover the wires will depend on the position in which the leads are placed, and on the currents they are intended to carry. The former is without doubt the more important consideration, for a lead which will safely carry a certain current when kept dry might speedily fail when exposed to much moisture, though the electro-motive force employed remained the same; and a covering which, while the lead is within the reach of no possible violence, might answer admirably, would prove utterly inefficient where the conductor is exposed to rough usage, or subject to all sorts of dangers.

The question of insulation is so closely allied to the mechanical conditions, though only claiming a secondary position, that it is impossible to separate the two qualities. We must confess that, owing to existing circumstances, we find ourselves unable to arbitrarily define what amount of insulation should be looked for in electric lighting circuits. No doubt there should be some standard adopted, but how to arrive at one seems difficult, on account of the many different points which must be considered.

India-rubber, when of good quality and well applied mechanically, so readily fulfills the demands upon it, that an almost incredible callousness exists with regard to investigation of the electrical conditions which accompany its employment in different positions and under varying circumstances. So much so is this the case that we believe very few of even the best known manufacturers could state what electro-motive force their different types of leads could be relied upon to withstand under varying circumstances, and what insulation they would give under the innumerable conditions of position in which they might be placed. Of course they know roughly from long practice that a certain class of lead will give satisfactory results under known circumstances, and as these are altered, so, within certain limits, they must change their type of covering.

It must be understood, however, that while thus criticising the manufacture of electric-light leads, we do not refer to the original treatment of raw rubber for application to the covering of conductors for electric-lighting or for any other purpose. This is a branch of the manufacture closely scrutinized, carefully experimented upon, and so far as the chemical and mechanical preparation is concerned, reduced to an exact science. There would be nothing left to desire were the subsequent treatment, from an electrical point of view, as carefully conducted. Competition is so keen, the time so limited, and the price so low, that manufacturers find themselves compelled to hurry on with the making of their leads without entering into experiments and scientific enquiry as to the capabilities of various adaptations of rubber under different conditions, relying on the excellent qualities which this material is known to possess.

It is argued that the many conditions with regard to position under which the leads may be placed, and the different electro-motive forces used, preclude, from their almost infinite variety, any standard insulation being determined; for instance the electro-motive force being employed in some cases may be only thirty volts, while in others the leads may have to withstand 8000 volts; the conductor may be placed in almost every conceivable position, and no one supposes that a manufacturer will use the same quantity of insulating material, or, indeed, the same quality under all these varying circumstances.

No doubt, as matters stand, these arguments are entitled to some consideration, but an outsider would naturally ask why a customer cannot specify the number of volts he wishes the particular leads to carry, and the positions in which he wishes to place them, or, at all events, employ some competent engineer to determine the matter on his behalf. No doubt such a course is carried out in some large installations, but as a general rule such a proceeding we believe to be the exception. A point to which we have previously referred, and which, as we have already stated, has not received the attention it deserves, is that of the conduction of heat in the insulating material itself.

It might be assumed that India-rubber, being a poor conductor of electricity, would also prove a bad conductor of heat, consequently wires covered with this, or other highly insulated material, would be subject to a greater accumulation of internal heat than substances possessing lower insulating qualities. This would, to a certain extent, no doubt be a drawback to the em-

ployment of rubber for electric light leads, were it not for the fact that a much thinner coating (and therefore easier conduction of heat) of rubber can be used than of any other material, having due regard to the retention of the necessary mechanical and electrical efficiency.

It is argued as a compound India-rubber conducts heat better than air does, the heat is dissipated more quickly from a wire covered with India rubber compound than would be the case were a naked wire employed. Against this theory it is urged that if the air is to be compared with India-rubber only as a conducting medium the idea would be correct; practically this is not the only consideration, the important feature of convection having been overlooked. In the case of a conductor surrounded by air only, the molecules are disturbed by convection, and place is made for air at a lower temperature, thus relieving the conductor of a part of its heat. It is evident that this cannot take place where the wire is covered with rubber, as the molecules, in this instance, though heated, remain unmoved, and only transmit the heat by conduction. It is thus argued that no analogy exists between the means by which heat is taken from wires placed under these different circumstances.

We have been frequently asked to recommend some type of lead combining the necessary qualities. It can be easily understood that to faithfully execute such a commission would far exceed the limits, and indeed, the intention, of the present article. It would be necessary to consider the varieties of work to which the conductors might be put, and the different positions in which they might be placed, and every different case would require a different type of lead. For general purposes, however, and where no abnormally high electro-motive forces are employed, we can suggest certain types as likely to give satisfactory results. The rubber must, in the first place, be of good quality, so that even when a thin coating has to be employed (on many kinds of in-door work for instance), the necessary insulation may be assured. The thickness of covering must, in all cases, be sufficient to guarantee protection against mechanical injury, and this consideration duly complied with, the quality of the material may be varied, within certain limits, according to the insulation necessitated by the position of the leads.

For indoor work where the leads are not exposed to any great risk of mechanical injury, the conductor should be first covered with a lapping of cotton, followed by a layer or layers of *pure rubber strip*, then coated with a tape, and having an outer protection of waxed cotton or silk braid. This type of lead will give high insulation, and will be found of a convenient size for taking through small pipes, as along passages.

For out-of-doors, for underground work, or for where the lead may be exposed to rough usage, the conductor should be covered with several coats of *compound rubber*, followed by linen tapes compounded with India-rubber, and then protected with hemp or jute braiding thoroughly compounded. The number and thickness of the coats of compound rubber will depend on the work and on the exposure to which the leads may be subjected. As an additional protection the leads should be taken through lead or iron pipes, and if laid underground, the pipes should be placed in troughs of cement or other material.

With respect to some of the less known processes named in the course of these articles, no doubt cases can be found in which they have proved unsuccessful, just as some India-rubber covered cables have been the reverse; but we need scarcely point out that occasional success does not prove that a system is sound, any more than in the second case would it be fair to condemn India-rubber which it is known has stood the test of time.—*Telegraphic Journal and Electrical Review* (London).

Recent Rubber Patents.

No. 459,015.—Wheel-tire; Henry Myers, Philadelphia, Pa.

A metal tire having hollow flexible sections secured thereto to form a discontinuous flexible thread of said tire, each section provided with an internal spring bearing against the back and thread portion of each section.

No. 459,335.—Wheel-tire; Stephen J. Rose, Whitney, England.

The combination, with a wheel-rim, of a hollow rubber tire having radial pockets and a continuous re-enforcing strip of canvas, spiral springs adapted to fit in the said pockets and cushions radially, and washers or filling-up pieces adapted to close the open ends of the said pockets and present a flat bearing surface to the spiral springs.

No. 459,363.—Tire for Velocipedes; Louis A. Hill, Philadelphia, Pa., assignor to one-half to Leon H. Gilbert, same place.

An elastic tubular tire provided with a narrow tread and a broader inner periphery, and a narrow outer rim internally located on the tire and a broader inner rim within the tire.

No. 459,378.—Electric Conductor; Edwin D. McCracken, Alpine, N. J., assignor to the Norwich Insulated Wire Co., New York.

The combination of an electrical conductor, loosely-twisted ribbons of paper wound directly upon the conductor, a flat ribbon of paper wound over the twisted paper, an insulating, sealing, and waterproofing compound applied outside of the flat ribbon, and a lead sheath; also of the method of applying paper insulation spirally around electrical conductors, which consists in first dampening the paper, then winding it on the conductor, and then drying the paper, whereby it is caused to contract and firmly embrace the conductor.

No. 459,509.—Conduit for Electric Wires; Henry W. Johns, New York, N. Y.

A seamless, woven, knitted, or braided tube or conduit made from asbestos strands or yarns, the same being waterproofed, and made in continuous lengths and having a coating of surfacing material, or coated with a vulcanizable material, or having an exterior coating of protecting and strengthening material, such as metal.

No. 459,536.—Method of Manufacturing Hose; Charles F. Simon, Bristol, R. I.

The process of manufacturing rubber lined hose, consisting in supporting the rubber lining or core on a contractible mandrel, passing longitudinal fibrous threads suitably supported through a mass of liquid rubber, securing these threads to the rubber lining by braiding diagonal threads over said longitudinal threads, and finally vulcanizing the hose.

No. 459,614.—Tire for Bicycles; William Richwine, Philadelphia, Pa.

A tire consisting of an elastic tube with pockets therein and provided with inflatable balls fitted in said pockets, said balls and tube having coinciding openings leading to the atmosphere.

No. 459,699.—Wheel for Velocipedes; Charles E. Duryea, Rockaway, N. J., assignor to the Rouse-Duryea Cycle Co., Peoria, Ill.

A rubber tire crescent-shaped in cross-sections, having its inner face provided with longitudinal and transverse series of ribs or tongues, and the combination, with a metallic rim substantially circular in cross-section, of a sheet-metal strip secured to the inner side of said rim and having its edges projecting at a tangent from the sides of said rim, forming V-shaped grooves, the edges of the tire fitting in said grooves.

No. 459,768.—Back-stay Protection; Owen J. Rieley, Grand Rapids, Mich.

A back-stay protector consisting of a band of rubber, leather, or other suitable material adapted to cover the back-stay of a shoe or gaiter, having a fastening-strap passing under and pressing the inside or breast of the heel thereof, and a brass or metal hook or fastener clasping the upper at the top of the back-stay of said shoe or gaiter.

No. 459,941.—Electric Cable; David Brooks, Jr., Philadelphia, Pa.

A cable having a casing or covering in sections, with a flexible coupling consisting of an inner wrapping of tin-foil with over-lapping edges, a layer of rubber thereon, and an outer layer of tin-foil on said rubber, said parts being combined substantially as described.

No. 460,056.—Process of Manufacturing a Composition Applicable for Electrical Insulating Purposes, etc.; Ernst Fahrig, London, Eng.

The process of manufacturing a composition for insulating and other purposes, consisting in taking a pulping stuff substantially such as described, then mixing and beating it up with manilla or other like fibres, then adding to this mixture a soap solution, and treating the resulting mass with a precipitate until the precipitate shows itself in the mass, then forming the pulp thus prepared into sheets and applying an insulating-powder to the same, next subjecting the material thus prepared to a pressure and drying heat, and finally treating the said material with insulating solution and then subjecting the treated material to great pressure.

No. 460,243.—Wheel for Velocipedes; Thomas Weir, Dublin, Ireland.

The combination with a tubular tire of elastic material, of two rims or hoops of different diameters arranged within the tire and means, such as a screw for contracting the smaller of the two rims and thereby holding the sides of the tire in a state of permanent tension.

No. 460,468.—Atomizer; Edward T. Bates, Washington, D. C.

An atomizer having a suitable air-supplying device and a conductor provided with an air and a liquid passage controlled by a stop-cock, in combination with a supplemental flexible air reservoir and regulator surrounding and communicating with the air-passage of the tube communicating with the liquid-receptacle between said stop-cock and said receptacle.

No. 460,520.—Plastering Compound; Edgar H. Benedict, Philadelphia, Pa., assignor to one-half to Francis G. Bates, same place.

A plastering compound, consisting of lime, clay, asbestos fibre and sand.

Passaic Mills Want the Credit.

INDIA-RUBBER manufactures of great variety will constitute an interesting and important exhibit in the World's Fair. And yet this now very useful and indispensable article was unknown when Columbus discovered America. The variety of uses to which it is now put is almost infinite and is increasing every day. In the past fifty years thousands of patents have been issued in this country and England, covering clothing, from hats to boots, belts, buffers, wheel-tires, washers, valves and tires, surgeons' articles, combs and chains, buttons, and knife-handles, brooches and bracelets, electrical appliances, fire-hose and innumerable other things. Passaic will cut a not unimportant figure in her display of rubber goods, provided our mills are credited to Passaic and not to New York as was the case at the World's Fair in Paris.—*Passaic (N. J.) News*.

It Might Help the Politicians.

THE INDIA RUBBER WORLD of September 15 has an account of a young man out West who has invented a two-part rubber suit that admits of gas being forced between the two thicknesses thereof. The buoyant quality of the gas gives the wearer of the suit a comparative weight of only about nineteen pounds, thereby permitting astonishing speed when running or jumping. This outfit appears to be pre-eminently the thing for politicians. They could improve their running qualities at a very slight expense, gas being so plentiful during the ordinary campaign.—*Marlboro (Mass.) Enterprise*.

Trade Notes.

GEORGE M. AYRES and George E. Austin have formed a copartnership under the title of the Duplex Rubber Co., with warerooms at No. 46 Cortlandt Street, New York. They will deal in mechanical rubber goods of every description. Mr. Austin is well known from his late connection with the Commonwealth Rubber Co., and Mr. Ayres from a recent association with the Metropolitan Rubber Co., where he had charge of the mechanical-goods department. He was, before his connection with the latter concern, secretary of the Hartford Rubber Co. Both members of the company are young men, with a wide acquaintance and a full knowledge of their business and their popularity and energy are assurances of a full measure of success.

—F. Phelan, of the Metropolitan Rubber Co., succeeds to the position formerly occupied by G. M. Ayres. Mr. Phelan is very well known to the trade between Boston and Baltimore, and with his thorough knowledge of the business is fully capable of filling the duties coming to him from the promotion.

—The rubber trade of Pittsburgh, Pa., is in the hands of two enterprising firms, Phillips & Co., and the Hartley-Rose Belting Co.

—G. B. Widner, of the American Rubber Co., has returned from a trip in the coal regions in Pennsylvania. The outlook for a good fall business is very bright.

—Jobbers, who get nearer the customer than the manufacturer, state that the second quality of shoes is giving way to the first and third. Curious as it may seem at first thought, country and suburban people demand the best quality, and city pedestrians are satisfied with the poorest. Country roads tax the quality of a rubber shoe, while city pavements favor the poorer article.

—The only rubber store in Newark, N. J., is owned by H. H. Thompson, an enterprising young man who hails from New York, and still holds a good trade in this city. Mr. Thompson is a jobber as well as retailer, and reports business good with a particularly large sale this season of mats and matting.

—There have been comparatively few failures in the rubber trade during the past nine months, those occurring having been principally in Trenton, N. J., with one of \$120,000 in Illinois. No failures of over \$100,000 have occurred elsewhere. The year 1890 was singularly free from large failures in the trade.

—J. W. Wallace, who for two years past has been in the New York office of the American Rubber Co., has been placed in full charge of the company's affairs in this city. Besides being a conscientious worker, Mr. Wallace possesses a thorough knowledge of the business gathered in sixteen years' experience, embracing a two years' sojourn in the forests of South America. His knowledge of the export business is very extensive, and his city acquaintance is all that could be asked. Rarely is there found among rubber men one who unites so many varied qualifications as those possessed by Mr. Wallace. Mr. McClellan, the retiring officer, enters another field of duty.

—The Gutta Percha and Rubber Manufacturing Co., New York, are keeping pace with the excessive demand for elevator belting now coming from all parts of the country. The largest grain-elevator belt in the world, 60 inches wide, eight-ply and 212 feet long, for the Locust Point Elevator, was manufactured by this company. More than a score of the largest concerns in this line are using the belts made by this company, some having them for more than fifteen years.

—E. A. St. John, of the Vendome Rubber Co., who has returned from a recent trip through New York State and the near West, reports an excellent business.

—The Woonsocket Rubber Co. have taken a step towards the further immortalization of "Whistling Joe," the popular boot-black at the building of the Metropolitan Life Insurance Co. in New York. In a large handsome picture, which, by the way, is given to the customers of the company, "Joe" is represented in peace and plenty, having secured a position with the Woonsocket Co. The luck that he has struck is plainly expressed in the twinkle of his eye and in every lineament of his face, and words simply define what it is hardly necessary for him to say: "I'm all right; I'm with the Woonsocket Co."

—J. P. Jewell has been appointed manager of the Page Belting Co. in Boston, an appointment that will give general satisfaction.

—A good many dry-goods and other firms in New York City are doing an extensive barter business on the west shore of New Granada and Ecuador. In this way they gather at times considerable quantities of crude rubber which they bring in over the Isthmus and by steamer to New York, and the importation of the gum from those countries is principally carried on in this fitful way. It seems to be a method analogous with that used by the trading companies on the west coast of Africa, the gathering of rubber being only incidental to other large commercial transactions.

—"Ye Old House of Goodyear's" inscribed on the upper story of a low frame building at No. 2197 Third Avenue, New York, is a sign that gives an impression to the pedestrian that he has struck a historical land-mark in the metropolitan centre. It is one of the best advertising signs in the city, for it is bound to attract attention. S. C. Watts, the proprietor of the store, keeps a good line of rubber goods, and apparently is doing a large business.

—The railways are not yet buying very heavily of steel rails, but they are putting a little pocket-money into rubber hose. The Boston Belting Co. have disposed of 30,000 feet of air-brake hose already. They have also disposed of a large quantity of hose for steam-heating in cars. This latter has to be made with much skill for if care is not taken in its manufacture the tubes will get spongy and the steam-way to the point of heating will become reduced in size and be ineffective to that extent.

—Rubber manufacturers are interested in observing that railway companies are becoming as a rule excellent pay, a sign of their prosperity. Some little trouble was experienced lately with the Union Pacific, but owing to the adjustment of its floating debt no losses were incurred.

—The Boston Belting Co., are doing a very heavy business in rubber-covered rollers for paper-mills. They recently filled one order for twenty-one rolls to be used for press, size and couch work. The same company recently filled one order of two belts 800 feet long and 24 inches wide for use in carrying ore. These belts have a peculiar surface so made that the ore cannot cut the felt.

—It is stated that the Brockton Rubber Co. will establish a branch store at Taunton, Mass.

—The factory of the New Jersey Rubber Co. at New Brunswick, says a local newspaper, is employing 500 men and women, and more labor is being advertised for on account of the press of orders. More orders have been received than ever before at this season. About 8000 pairs of boots and shoes are made daily. It is not probable that the factory will close at any time before April, 1892, at the time of taking an account of stock. As the usual vacation was not taken in August, the employes will thus have a long season of uninterrupted work. Two-thirds of the goods produced are handled by the Western agent, G. M. Phelps, at Chicago.

—The two stores of George D. Barr, Buffalo, N. Y., doing business as the Buffalo Rubber Co., have been attached by the sheriff to satisfy a judgment for \$20,017.55 held by his wife, Sarah C. Barr. The money was loaned to him from her private estate and used in his business. Besides this, two chattel mortgages of \$5000 each are to be satisfied. One of them is held by the Metropolitan Rubber Co. of New York for goods purchased by Barr, and the other is in the hands of William H. Walker of the Merchants Bank, it having been executed to him as security on an endorsement.

—Col. Aaron S. Taft, for seven years past manager of the Worcester (Mass.) Rubber Co.'s store, has purchased the interest of J. Francis Hayward and will conduct the business on his own account. He intends to enlarge the line of goods carried, adding mackintoshes and mechanical goods. George W. Rousseau will remain in the store as assistant. Col. Taft has long been in the rubber business. His father, J. E. Taft, was a rubber-goods dealer, having at one time the only rubber store in New England outside of Boston.

—A "boom" in belting seems to have come to the front. It seems that owing to an unprecedented crop of cereals the Western people found their elevator capacity taxed to the utmost and all stores that had fallen into disuse were opened up. Of course there was a general overhauling of belts and many had to be renewed. In Chicago also there has been an outlay of \$150,000 to \$200,000 for new belts, the bill of one company alone, the Boston Belting Co., having been over \$50,000. The companies had very short notice given them, the demand being as remarkable for its urgency as its volume.

—Harry Martin, of Fort Dodge, Iowa, it is stated, has completed arrangements for starting a rubber-stamp factory in this town on a large scale. He will come into competition with manufacturers in St. Paul, Dubuque and several other Western cities.

—The Combination Ball and Rubber Co. have been incorporated at Bloomfield, N. J., with \$25,000 capital authorized. The incorporators are Messrs. Stanley and Edward Greacen, of Bloomfield, and Robert H. McCarter, of Newark.

—The Boston Rubber Cement Co. have been organized in Boston for the purpose of manufacturing and selling rubber cement. The officers are: G. Edwin Alden, president, and Arthur W. Steadman, treasurer. These gentlemen and George A. Alden, all of Boston, are the directors named. The capital stock authorized is \$30,000. It is reported that work has been commenced at South Natick.

—C. G. Carleton & Co., a rubber-goods firm at No. 55 South Canal Street, Chicago, Ill., have confessed judgment for \$12,278 in favor of William Schenck, and \$1027 in favor of Helen W. Dimock. Executions were issued and the place seized by the sheriff. The concern was a corporation, of which E. D. Weston was president. It was established in the sixties by C. G. Carleton and for several years did a large business in rubber goods and firemen's supplies. Since the death of C. G. Carleton, in 1874, the business of the firm has been steadily decreasing on account of poor management. This, together with the sharp competition in that line of business, caused the failure. As one of the company put it, it was "a case of dry rot." The liabilities will probably not exceed \$20,000 or \$30,000, and the assets will not more than half cover that amount.

—The mill of the National India Rubber Co., Bristol, R. I., has been running full of late. Between 11,000 and 12,000 pairs of boots and shoes are being made a day, and as a consequence things begin to wear a better aspect around town. The weekly pay-roll is increasing and a larger number than for some months past is employed.

—The Jersey City *News* says it is reported that a new rubber-hose company will be started at Greenville, N. J.

—The Kansas City Oil Clothing Co. have put in a large lot of new machinery, and are taking many orders for "slickers," aprons, overalls, horse blankets, etc., etc.

—The new Masonic Building in Chicago is to be wired with 65 miles of the Simplex Insulation.

—Large corporations are very glad to discover the best machinery-makers, and when found treat them most generously. A boiler-maker in Lawrence, Mass., has found this to be true, for as an acknowledgment of the good work that he has been doing in years past, the great Pacific Corporation are using today forty of his boilers. The name of this fortunate manufacturer is E. McCabe, proprietor of the Lawrence Boiler Works.

—The rubber tube in connection with the gas-jet has proved quite a popular accessory to suicides of late. A variation on the regulation manner is that indulged by a New Jersey inventor, who secured a length of stout tubing, and winding it several times about his neck died of strangulation.

—The Cameron Silica Company, of Providence, R. I., issue a circular addressed specially to rubber manufacturers, in which they give the advantages of fossil flour as an adulterant for rubber. A comparison between fossil flour and other adulterants in the matter of weight, is given which will be of interest to all rubber manufacturers. Those who have not received this circular should send for it.

—The Boston India Rubber Works are out with a circular declaring their intention of soon manufacturing mechanical rubber goods together with mackintosh clothing.

—The Crescent Insulated Wire & Cable Co., are a Trenton concern made up of gentlemen well known to the rubber trade. Mr. C. Edw. Murray is the president, R. R. Whitehead is the vice-president and treasurer, and F. A. C. Perrine is the consulting electrician. They have erected a substantial building on the borders of Assanpink Creek, and are making an excellent grade of insulated wire.

—The trade will regret the withdrawal of Mr. A. C. Oliphant from the firm of Brook, Oliphant & Co., later the Globe Rubber Co. Mr. Oliphant has been connected with the institution since its foundation. His gentlemanly manner in conducting business gained for the concern of which he was a member a large amount of trade, and for himself quite an enviable reputation.

—Mr. Frank L. Williams, of the Tyer Rubber Co., is doing the Southwest just now with good success. He does not expect to see Boston again until the last of December.

—The Vulcanite Rubber Roofing and Matting Co. have been incorporated at Peoria, Ill., with \$20,000 capital. The incorporators are Luke Sweetser, William H. Coleman and Joseph N. Hopper.

—The Finley Rubber Varnish and Enamel Co. have been incorporated to do business at Newark, N. J., with \$250,000 capital authorized, and \$1000 paid in. Perry, Finley and Francis Mackin, of Newark, and Davis H. Morris, of Elizabeth, are interested.

—The Gutta Percha and Rubber Manufacturing Co., of New York, have just opened a fine store in Boston, to supply their New England customers. The store is situated in the heart of the rubber district, and runs through from No. 177 Devonshire to No. 38 Arch Street, and is already fully stocked with a fine line of mechanical rubber goods. Mr. Daniel E. Downes, well known to the rubber trade, has charge of the general business. Mr. W. H. Adams will attend to the fire-hose trade.

—The New Hampshire Rubber Co. have closed their store, the stock being moved to the Boston store of the proprietor, J. Francis Hayward.

—The Woonsocket Rubber Co. report a very large export business. A single recent order from France was 18,000 pairs of shoes. About ten times that number have been shipped to France by this company this season.

—The rubber goods export business to Havana, Cuba, has been excellent. The senorita of the "ever faithful isle" likes a very light stylish sandal, while the inhabitant of Mexico either discards the rubber shoe altogether, or takes a clumsy boot. Spanish houses in New York generally do all the buying and forwarding, only allowing the destination to be inferred, and the details of an order coming from these houses generally covers a full sheet of foolscap.

—The early history of the New Jersey Car Spring and Rubber Co. is not generally known to the trade. The company were incorporated in 1858, and unfortunately removed to Richmond, Va., just prior to the breaking out of the Civil War. They turned their efforts to the manufacture of rubber blankets for the Confederate armies, but it was with the utmost difficulty that they could obtain skilled workmen, and when the blockade occurred they could not get the crude rubber, so the enterprise was abandoned for a time. At the end of the war the machinery was removed to Jersey City, and the company have shared in the general prosperity of the rubber trade ever since.

—Edward R. Rice, who has a large rubber store in Buffalo, N. Y., is said to have the only one between Boston and Chicago that is devoted exclusively to the sale of rubber boots and shoes. He has been established since 1887.

—In Vermont and other Northern States the demand for Arctic socks with lumbermen's overshoes is notably increasing. The old-fashioned sheepskin moccasin is still worn and gives way very reluctantly. One has only to walk along the streets of a Lower Canadian town in winter to see how tenacious is this custom, and there is something in the grip they have on the ice and snow which makes them look comfortable, graceful and practical.

—The New York Central & Hudson River Railroad Co. will, within the next few weeks, re-equip every car on the road with a new system of heating. Probably a large amount of steam hose will be needed.

—The rubber-shield business is over for the season, although there is a good export demand from the Southern hemisphere. The Mattson Rubber Co. have had a very good season in this trade.

—The Eureka Fire Hose Co., who have already a large factory in Brooklyn and another in Jersey City, are making arrangements to extend the latter at an early date. This extension is made necessary by the rapidly growing business of the company.

—The National India Rubber Co., Bristol, R. I., are reported as doing an extensive business in the manufacture of rubber-covered electric wires. The mode of operation is as follows: a proper gauge of wire is selected made of Lake copper, as pure as practicable. This is given a coating of fine Pará, and a seamless covering is thus made. This is carefully wound with rubber tape thus insuring a continuous water-proof envelope, and the whole vulcanized. A large quantity of this wire is being used in the subways in New York City.

—The International Okonite Co. have lately procured a new transformer from the Thomson-Houston Co., for the purpose of testing their insulation. It has an electromotive force of 23,000 volts. It is "Greek against Greek" when such tests are being made.

—Eugene Herbert, of the Atlas Rubber Co., has been absent on a business trip in the west and southwest, for two months, intending to remain out three. Mr. Herbert is at present in Texas and is sending home some excellent orders. An order

for a thousand water bottles is becoming an ordinary circumstance. For some reason, probably good grain crops, Texas is sending in good orders in every line of business. There are few rubber houses in the State, but they are very enterprising and keep good lines. Among others Kalteyer & Sons, at San Antonio, and Gale, Sewell & Allos, at Fort Worth, are to be mentioned.

—Little Miss Cleveland, the ex-President's daughter, seems to have set a pace for other infants in the adoption of a lilliputian rubber bath, made in a folding frame and which must prove a great convenience. Like her mother, who could do nothing unless there was a tinge of genuine popularity in it, the little one has by an unconscious stroke of tact endeared herself to rubber men.

—The stock market has released its tight grip on the money market; consequently rubber-men will not have so much difficulty in obtaining accommodation from the city banks, which have for some time past practically withdrawn from all industrial enterprises in order to profitably feed a speculative fever now rapidly on the wane.

—The white-lead and pigment markets seem to have settled into a state of quietude. There is a good demand for litharge, without any change in prices. The fine weather has caused a good demand for all these articles, entering as they do into paints the consumption of which is much restricted by storms. There is some uncertainty in the linseed-oil situation, which has a bearing on the Calcutta grades. In oxide of zinc there is no change, consumption and production being very well balanced. In pigments there is no change, the association holding its prices very firmly.

—Concerning a new rubber mill in the Dominion the *Toronto Shoe and Leather Journal* says: "The Port Dalhousie Mills are progressing slowly. Messrs. McIlroy and Taylor have just returned from the other side where they have been perfecting arrangements for machinery, etc. The mill will hardly be in running shape before the end of the year, although it is stated they will commence to make goods six weeks hence."

—E. Elberson, Treasurer of the Setauket (L. I.) Rubber Works, reports that his company are doing a very large business. The factory employs now 300 hands and turns out 6500 pairs of boots and shoes per day. Orders are booked far ahead, and a peculiarity has arisen. People who don't receive their orders promptly mistrust that their credit is attacked, and then they offer a check. To satisfy these people involves much labor, and is rather embarrassing, and more than one house is now bending to the task. It will be a busy time for boot and shoe men until March on orders that are in sight at the present time.

—The sale of beer and wine trays has now reached large proportions, one house disposing of 900 gross per month. They are made of hardrubber, inexpensive and will not break. For a long time nothing else has been used, and now nothing else is practical.

—The Millard Manufacturing Co., of Providence, R. I., have lately issued a very neat twenty-four page catalogue which contains some twenty cuts of special designs of atomizers in special designs of their own. There are also a variety of illustrations and descriptions of fountain and bulb syringes and a general variety of druggists sundries.

—Fire damaged the belting manufactory of Kellogg, McCauley & Terhune, Nos. 62-66 South Canal Street, Chicago, on October 1, to the extent of \$40,000, not including the loss on the building, which was leased. The fire began on the second floor, used as a warehouse for rubber belting, of which the company made a specialty.

—The Shawmut Rubber Co. is the name of a new concern in Fall River, Mass. Their card gives the information that they are importers and makers of mackintosh clothing. J. J. Harrington, formerly of Boston, is the proprietor.

—Mr. Frank Hall is still working on his scheme for turning his Watertown rubber mill into a plant for artificial ice and will probably soon have all the arrangements consummated.

—Mr. H. B. Prindle, who for some time past has had the placing of the advertisements for the Thomson-Houston Co., and also the getting up of their extensive catalogues, has begun business for himself as an expert advertiser. He will also make a specialty of catalogues for manufacturers, in which line he is singularly happy. He has taken an office in the Exchange Building, Boston.

—E. H. Clapp, of Boston, will hereafter take an active part in the management of the Whittier Machine Co. The concern is to have a new and extensive plant and to pursue a much more aggressive policy than in the past.

—W. V. B. Thomson, representing the American Rubber Co., of Boston, has opened offices in Melbourne and Sidney, Australia, where he will handle the rubber clothing, rubber boots and shoes, and oil clothing of this progressive house.

—The Boston Rubber Shoe Co. have issued a neatly-printed pocket-size catalogue and price-list of their manufactures, for the season of 1891-92. Illustrations are given of many new styles of goods, in addition to their standard products.

—Bolivia proposes to build a railroad sixty miles long to tap the Amazon by a newly explored tributary.

—The rubber manufacturers encircling the buildings destroyed in the Park Place disaster in New York found it difficult for a week or ten days to retain their employés. They were especially nervous, which in itself was distracting to a mind endeavoring to do good work, and then every jar or vibration was magnified by the imagination into a forerunner of another and immediate collapse. The factories, after a day or so, were closed as a practical necessity, but confidence now has been restored and all hands are at work. Of course there is no reason to fear that any of the adjoining buildings will fall, as the conditions of the wrecked ones are not present, and if they were the law of chances would favor a different locality, or to put it in another way, lightning does not strike twice in the same place.

SOMEWHAT PERSONAL.

H. E. SPADONE, Vice-President of the Gutta Percha and Rubber Manufacturing Co., New York, sailed on the steamer *Spre* on September 22 with the purpose of making an extended business trip in Europe. Mr. Spadone will visit England, France, Germany, Norway and Sweden, running up to the place where the sun is rather erratic in its getting up and going down, and return to New York in November.

—George Tooker, of the Metropolitan Rubber Co., who possesses a most excellent voice, was prominent in the recent historical musical entertainment in New York, in description of scenes in the civil war. Mr. Tooker intends to make the stage his profession.

—A. J. Tower, treasurer of the Metropolitan Rubber Co., was in New York on October 6 to attend a meeting of the company.

—Joseph Banigan, president of the Woonsocket Rubber Co. and George B. Hodgman, secretary of the Hodgman Rubber Co., were both passengers on the *Majestic* which arrived from Liverpool on September 30.

—J. Wallace, of the American Rubber Co., has returned from Philadelphia, where he has been to look after his old customers.

—Mr. F. A. C. Perrine, superintendent of the cable department at the great Roebling Wire Works in Trenton, New Jersey, is quite an expert in gums of all kinds, having a laboratory in which, with the aid of assistants, he performs many interesting experiments.

—Mr. L. D. Apsley, of the Goodyear Gossamer Co. of Hudson, Mass., is quite interested in booming that live town, and has been made president of the Board of Trade.

—Dr. A. F. Mason, of the Simplex Insulated Wire Co., of Boston, while at the Electrical Convention in Montreal, took time to visit and examine the electric light system at the city of Quebec.

—Mr. Henry Williams, known as a New England Roller Grate man, was the patentee of something that every magazine in the country has known and endorsed—the "Common Sense Binder."

—C. M. Clapp, besides being an astute and successful rubber manufacturer, was a friend and admirer of Ralph Waldo Emerson.

—Superintendent Videto, of the Gossamer Rubber Co., is a great lover of horses and usually drives the best one in South Framingham.

—A New York rubber manufacturer has framed and hanging in his house a rifle score that shows a series of marvellous shots were made by Francis Holton, who is now with the crack rifle shots of Akron, Ohio.

—F. A. Magowan, president of the Trenton Rubber Co., instead of spending his summer at Spring Lake, New Jersey, as has been his custom, took in a variety of watering-places, combining, as he expresses it, both business and pleasure.

—R. R. Whitehead, of Trenton, New Jersey, is having a struggle with malaria, and according to his friends is far from delighted with the infliction.

—President Horace H. Tyer, of the Tyer Rubber Co. has removed from his seashore home at Clifton, Mass., to his winter home in Andover.

—John H. Parker, of Boston, Mass., manufacturer of the rubber-upper, leather-sole boots, reports business good, and a large increase in orders over the previous year.

—J. Francis Hayward, of Boston, Mass., has just returned from a business trip to Canada.

—William Baum, representing the New Jersey Car Spring and Rubber Co., is down among the New England rubber stores.

—No doubt numbers of our readers have wondered who President Sawyer, of the Mercer Rubber Co., might be, and we would say in explanation that the printer was in error in this case, the name being Sayen.

—William E. Bartlett, the managing director of the North British Rubber Co., of Edinburgh, Scotland, is in New York on a brief visit.

—Senor Alberto Falcon, the popular Peruvian in charge of the rubber interests of W. R. Grace & Co., New York, made a happy speech at the meeting of the Cuban patriots on October 10. Alluding in grateful terms to the interests that Cubans had taken in the establishment of a republic in his native land he said he hoped that it would not be many years before the "pearl of the Antilles" would throw off the Spanish yoke and fall into line with the other countries of the Western hemisphere as free and independent of all monarchical rule.

—Superintendent Joseph D. Thomas, of the Pará Rubber Works, is on a vacation in England. He will spend several weeks in Bonnie, the home of his youth.

—J. O. Stokes, treasurer of the Home Rubber Co., has returned from his summer's outing at Belmar, New Jersey.

The Birmingham Mill to be Rebuilt.

THE fire in the Birmingham (Conn.) mill of the Rubber Reclaiming Co. mentioned briefly in the last issue of THE INDIA RUBBER WORLD has since been found to have originated in a pile of old burlap bagging somewhere in the middle of the mill. Having once started, the flames spread rapidly, defying the best efforts of the local fire company. The business of the company is reported as having been very good of late, \$10,000 worth of new machinery having been placed in position just before the fire occurred. It is stated that the Birmingham mill will be rebuilt at the earliest date possible, and on a larger scale than before. Meanwhile the Rubber Reclaiming Co. will be able to manufacture an immense line of goods at their mills in Philadelphia, Jersey City, Trenton and Lambertville, N. J.

The new mill, plans for which have been adopted by the directors, will cover the largest portion of the land owned by the company, and will be a very handsome structure. The office will remain just as it is, and the new portion of the mill will be constructed around it.

On the north side of the office the wall will be extended 33 feet on a line with the front of the office, then it will run back, or east, 41 feet, and then turning run 40 feet north again, and then 103 feet to the rear wall. On the south side of the office the first new wall will start quite a distance back of the front line. This wall will run 31 feet south and turning run back 111½ feet to the rear wall. The extreme length of lines will be 156 feet by 138 feet.

All the walls will be of brick, twelve inches thick. The roof will be trussed, and the centre of the shop will be lighted by sky-lights. The covering of the roof will be gravel. The office will be situated in the front of the building and the boiler room will be directly behind this. The shop will be tracked for dummy cars.

The construction of the mill will leave two small flats of land on each side of the office. The part at the south side will be used for storing coal, and that on the north will contain an acid tank. The remainder is to be sown in grass. The plans of the elevation show a very handsome structure, and as the building will be single story gives a chance for some very artistic work.

An Attractive New Catalogue.

AMONG the handsome catalogues of the year is that of the Meyer Rubber Co., of New York, Chicago and New Brunswick, N. J. The company take pride in the length of their existence, which dates from 1842, and which, it is claimed, makes theirs the oldest boot and shoe manufactory in the country. The catalogue is an oblong octavo of 58 pages with a handsome cover on the front, the title-page being in colors and the back having two handsome views of their extensive works. The engravings of their boots and shoes are more than usually fine, a separate page being devoted to each style. The portrayals of each are taken from actual photographs, and are therefore

true representations of their goods. List prices are given opposite each style of goods, and are also repeated in a separate department in the back part of the catalogue, a convenience which will be appreciated by the trade. The catalogue is worthy of the best efforts of a company which have gained a lasting reputation in the trade of the country.

The "Boom" of a Rubber Company.

A LATE issue of the Providence *Journal* contains the following reference to the business of the rubber works which are an important feature in the industrial interests of Bristol, R. I.:

"The boom in business at the factory of the National India Rubber Co. this fall is having a very beneficial effect upon all branches of business, as well as making every one in town feel in better spirits. It is seen in the many improvements now making in town on churches and dwellings, and in social enjoyments, and the pleasures that arise from steady employment and payments weekly. About 12,000 pairs of boots, shoes and gaiters are made daily, and the weekly pay roll is between \$9,000 and \$10,000. The mill now begins to present the appearance of five and six years ago, when it was run to its full capacity. This result has been brought about by the business energy, perseverance and tact of the managers of the present company, who, since they first put their hands to the plough, never have turned back. The usual ups and downs of business life have been the lot of the new company, as it has been meeting with sharp competition and dealing with advance in the raw material, but still keeping their mill in motion, though the outlook baffled the skill of men of strongest business acumen.

"The memories of 1887, when the assignment of the old company was made, when Col. S. P. Colt, as assignee, undertook the herculean task of bringing order out of chaos, and the subsequent purchase of the property by a company of which Colonel Colt was a member, and was chosen treasurer, which office he holds at the present time, and also that of president, is familiar not only to the people of the town, but of the State. Before the sale of the property at that time, it was reported that the property might pass into hands that would and could afford to close the mill that the production might be lessened and their own mills reap the benefit. Indeed, great uncertainty was felt as to what would become of this splendid plant. At this time, which seemed to be the opportune one, Colonel Colt stepped in, and, though with no knowledge of the business, agreed to take stock in the new company, and pushed the matter with such energy that such men as F. M. Shepard, of New York, Charles Loewenthal, of the same city, John C. Balderston, of Boston, all men well acquainted with the business, associated themselves with him, and the company with its business to make started out. Isaac F. Williams, who, for twenty-five years had been the superintendent of the old company, was wisely retained, and to-day has the management of the affairs of the company at the mill.

"To Colonel Colt's prompt action is due the running of this industry to-day, and the presence of a Bristol man as its president and treasurer, insures to Bristol people work within its walls, when it is to be had, and promises to the town that its wheels will continue in motion as long as there is any business to be done. There are now about 950 hands employed in the mill."

THE Baron de Gondoriz sailed from Lisbon to Pará on October 14.

Enlarging an Ontario Rubber Factory.

AN order from the Toronto Rubber Co. of Canada, Limited, for several car-loads of rubber machinery has just been executed by the Birmingham (Conn.) Iron Foundry. The company mentioned have just been enlarging and improving their factories at Port Dalhousie, Ont., and will shortly commence the manufacture of all kinds of mechanical rubber goods, in addition to a complete line of rubber boots and shoes, on which operations have been commenced. The factories are admirably equipped, no expense having been spared to render the facilities as complete as possible, and the company have the advantage of a very extensive water-power in connection with the Welland Canal, being situated at the juncture of this with Lake Ontario. The output of rubber shoes will reach several thousand pairs per day. The company, incorporated under the Dominion Government, announce the following directorate: Sylvester Neelon, president; T. McIlroy, Jr., vice-president; J. H. Taylor, treasurer; M. Macpherson, secretary; and James Pearson, solicitor. The organization is composed of live, pushing men, of large experience, all of whom are well known throughout the Dominion; and the operations of the concern, which have been heretofore very extensive, reaching from the Atlantic to the Pacific, will be considerably enlarged and improved under these new auspices.

Canada's Leading Rubber Manufacturer.

THE largest rubber manufactory in Canada is at Montreal and was founded by the late Sir Hugh Allan, the well-known politician and steamship owner. It is a large concern and virtually controls the trade of Canada, Sir Hugh having worked for years to shape tariffs so as to place American manufacturers at a disadvantage. Lately an advance has been obtained in tariff rates on rubber goods from 25 to 35 per cent. *ad valorem*. The company often contrive to buy crude rubber at two or three cents per pound cheaper in New York than our own manufacturers. As there is no duty on crude rubber this places them again at an advantage. Why they should buy rubber cheaper is not clearly stated, but it is intimated that when there is a "deal" going on the rubber for Canada will not come in competition with that offered to American manufacturers and is so much less stock to carry. Their banking facilities in New York are excellent, although some brokers complain of the "red tape" in verifying weights. Large transactions are made, however, and a round lot is an attraction to the importer.

A second large concern is now ready to start. American manufacturers have branch factories at Toronto, Niagara Falls, and other places, so that they can maintain a trade with the Dominion in the face of the obstacles imposed by the tariff of that country. The exports of rubber goods from the United States to Canada now consist largely of shoes, zephyrs and the like, and also of American specialties which the large concern at Montreal cannot make be-

cause of the great variety to handle. The Montreal company caters, however, to an immense lumbermen's trade.

A Popular Rubber Belting.

THE Gutta Percha and Rubber Manufacturing Co. of New York, have now been manufacturing their "Monarch" rubber belting for the past six years, and it may be noted that they have sold more of it than of all their other brands together. They have constantly improved the methods of its manufacture and now they consider it, as a belt, well-nigh perfect. They were gratified recently to receive a fresh order from a manufacturer in North Carolina, who volunteered the statement in his letter of advice that it was the best belt he had used in thirty years' experience. The composition of this belt is peculiar. The duck used is first coated with rubber and the sheets pressed together. The plies are then united by longitudinal rows of cotton-cord stays, or flexible rivets, driven vertically through the plies. This cord, when inserted, is cut to project about one-fourth of an inch from both sides of the belt; these heads are then imbedded in the rubber coating of the duck by pressure; the outer covering is then applied, and the whole vulcanized together. The object of this method of manufacture is apparent. In the ordinary belting stitched or sewed together the stitches are liable to break and the plies become separated by the stretching of the belt. In the "Monarch" each rivet is independent and is kept in place by the fastening which will not yield. The cord stays follow the stretch without changing position, and firmly hold the plies under great strains. A deer's head with antlers is the trade-mark used on this belting.

The Coats Were of English Make.

IN the August issue of THE INDIA RUBBER WORLD was published the following paragraph, received from the Pacific coast:

"A doubly tin-lined and hermetically-sealed box containing rubber coats has been in the Atlantic Bonded Warehouse, San Francisco, Cal., for some time. Recently it was found to be quite hot, and day after day the heat became more intense until it was decided to investigate. Finally a permit was got from the Collector to open the box. It was taken from the building and opened with an axe. As soon as the fresh air struck the contents flames leaped into the air for several feet and a cloud of smoke escaped. The rubber goods were mackintoshes containing some compound which caused spontaneous combustion."

Having been desired by the manager of a large rubber manufacturer to discover if possible by whom the goods were shipped, the editor of THE INDIA RUBBER WORLD addressed an inquiry to the Collector of the Port of San Francisco, and in due time the reply came that the coats were made by a large manufacturer in England, were shipped by the *Britannic* to New York, and consigned to a rubber dealer in San Francisco.

SUCCESS in business is not accidental.

A Device for Economizing Fuel.

THE engineer is often questioned by those about to engage his services as to his ability to produce steam-power economically. To answer this question intelligently he is entitled to a knowledge of the condition of the plant as a basis for economy. Again, the engineer is called upon frequently to reduce the running expenses to correspond with the exigencies of the times; and a just appreciation of his services, as well as the security of position, often depends upon his ability to meet this demand. What the engineer needs most to know is how to provide the greatest amount of power from the smallest amount of fuel, consistent with possibilities in the condition furnished in the plant; how to make his coal-heap last longer and at the same time furnish more steam or drive more machinery.

A competent engineer, good fuel and a good grate are essential requisites for producing steam-power economically. The mistake oftenest made is to suppose that one grate-bar is as good as another. The improvement in grate-bars has kept steady pace with the improvements in steam-boilers and steam-engines; yet an engineer is some-

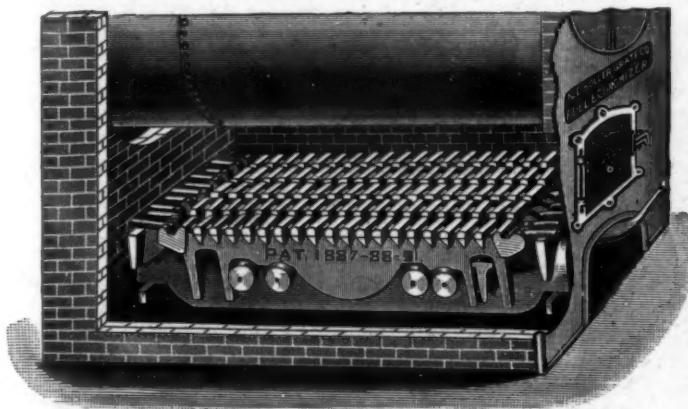


FIG. 1.

times met with who contends that the common "dead" bars used fifty years ago are as good as any, ignoring the fact that ingenuity has been exercised in this as in every other direction.

Whatever the merits of stationary grate-bars all of them require the frequent opening of the fire-doors to "slice" the fires, which operation occasions the loss of partially-burned coal and much steam, all of which may be saved by the use of a good "shaking-grate," with which a clean fire is kept and a uniform draft—consequently, more perfect combustion of the fuel without waste or loss of steam power by opening the top doors to slice fires. By reason of more perfect combustion, the real paying duty of the coal is more completely utilized. The advantages of the shaking-grate having been acknowledged, a further step has been made in the production of the "roller-grate," so-called because all the weight of the grate-bars and fire rests upon and is moved on anti-friction rollers, this doing away with all friction of cams, sliding-bars and connecting-rods.

The first illustration herewith gives a general idea of the

"Improved Roller Grate" in position. The second cut gives a sectional view, with only one grade grate-bar attached. The third shows the parts in detail, thus: *A*, hanger; *B*, grate-box; *R*, roller; *R*¹, rocker; *H*, header. This style of grate-bar having been introduced recently into two of the largest rubber-factories in the countries, some further description seems proper in this connection.

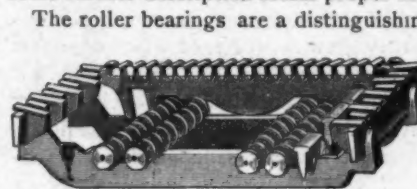


FIG. 2.

The roller bearings are a distinguishing feature of this grate, as is the simplicity and novelty of the movement, consisting of any number of grate-bars running all at once, on a horizontal line each bar in opposite direction to each other on either side, the whole set in motion by a rocker hung at the front of the grate, the sole office of which is to move the bars, and upon which there is no weight. Another notable feature is that in putting it under a boiler, it is hung on the common bearing bars, found at the furnace, and can be placed in position as quickly as the common bars, for there is not a bolt, nut, screw, or any connecting arm to be adjusted, and when in position every piece in the furnace is loose and free to expand or contract in the fire without crowding or binding any other part, hence it cannot be clogged with clinkers or its motion stopped by warping. Last but not least, every bar is reversible and all parts interchangeable. The simplicity of construction, the positive and easy motion, the thorough manner in which it

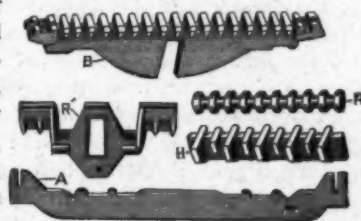


FIG. 3.

cleans the fire at the bottom without breaking up the fire at the top thereby sending the dust and ashes into the boiler tubes, and the universal testimony of those who have used them throughout New England gives the strongest support to their claim to excellence.

The Roller Grate was awarded the medal at the last Massachusetts Charitable Mechanics' Exhibition, since which time it has been greatly improved. Manufactured by the New England Roller Grate Co., No. 65 Federal Street, Boston, Mass.

It has been well said that spasmodic advertising, even when made on a large scale, is disappointing. The ephemeral feature of such advertising looks as if the man had made a grand effort, and failed. Merchants who permanently advertise create the impression of strength and soundness. People feel that those who keep their names before the public are solid and substantial.

A RECENTLY-PRINTED sketch of Daniel Webster mentions that his fee for arguing the great equity cause of Goodyear vs. Day in the Circuit Court of the United States for the district of New Jersey, by which he established the validity of the Goodyear rubber patent, was \$5000. This was his last case.

Brazil in Financial Difficulties.

THE finances of Brazil seem to be gradually reaching a point where exhaustion is to be considered as a possibility. Paper money has been issued in such quantities that the milreis now is worth only 14½ d. against its normal value 27d. Naturally the foreign bankers who have floated large schemes are desirous of keeping affairs as they are, provided they grow no worse, of which of course there is little assurance.

There is little gold in the country, all that is circulating being what is received in the way of duties. These duties are elastic. There is a fixed duty sanctioned by the national legislature. To this is added another duty imposed by the Minister of Finance, presumed to meet the exigencies of the occasion. It now has reached 40 per cent. Again, under the Empire the owners of liberated slaves were to be recompensed, and 5 per cent. was added to the duties for that purpose. Since the Republic was formed, this debt has been ignored, but the 5 per cent. goes on. Brazil has few manufactures of importance, and everything has to be imported. Prices for imported goods have reached a point at which people have now to do without many comforts.

To illustrate the craze for investments, it is stated that a plumber had on one of the streets of Rio Janeiro a small shop the cost of which would have been dear at \$1000 in the United States. He was approached by a promoter who offered to make a deal with him, and give him \$10,000 for the good-will of the place. A stock company was formed on a paper capital of \$100,000, the stock was taken and the first instalment paid the original owner. The other instalments are now being ignored.

Export duties have been reduced from 16 to 12 per cent. in order to stimulate the sale of the products of the country and get gold in return. Labor is very high, money is cheap and buys but little, and the people are looking with a heavy feeling for something to happen that will release them from the throes of a financial collapse.

Rubber Grain-Drill Tubes.

FEW are aware how large a business is transacted in grain-drill tubes made of India-rubber. In almost any year this business is good, but this year in particular, with the great harvest in prospect, and the agriculturists feeling wealthy, the business promises to be particularly large. It is stated on good authority that the State of Illinois consumes 150,000 of these tubes yearly, that in the same time the State of Ohio uses 250,000, the State of New York 250,000, while a rough computation gives the total annual consumption at one million tubes. When to this is added half a million more tubes for the general-repair business, it will be seen that this is no small feature in the general output of manufactured rubber goods.

It is reported that the rubber forests of Madagascar are being depleted, the trees being cut down at the stump to more readily get the milk. The Madagascar product, as is well known, stands high in quality.

Review of the Rubber Market.

THE market during the last thirty days has ruled firm at the decline. It is stated that on the fall as low a price as 58 cents was made, and it is intimated that a single trade so low as 56 cents was concluded, with an endeavor to keep it confidential. Whatever may have been the lowest point a steady advance has taken place, and at present the market is substantially at the highest point of the reaction, or whatever it may be termed. An excellent business has been done, manufacturers taking largely, and a good demand has been had for speculative account.

The New York market with all its firmness is still below that of Pará or of England, it being stated that at prices being obtained in the former centre, rubber could not be laid down in New York at less than 69 cents, while a quotation of 70 cents is cabled from London. The large holders are very firm in their views. The principal holder, who has a stock variously estimated at different amounts above 1,000,000 pounds, has made considerable sales of coarse Pará which as is well known suffers heavily by shrinkage. Another importer whose holdings, however, are comparatively light, refuses to part with any of his rubber, and it can be stated that at the moment there is little danger of any large stock being precipitated upon the market. The arrivals from Pará and the rubber afloat are comparatively heavy, but none of it seems to go into store, therefore it is not a pressure upon the market.

Centrals are very scarce, and everything is picked up as fast as it arrives. Nicaragua is held higher for good grades. Africans are higher. The price for a low grade of African flakes has advanced from 21 to 25 cents, which is a nominal price, and would probably be further advanced to 27 cents to an urgent customer. There is a good demand for Madagascars and Majumba balls. The whole market can be tersely stated as active and firm.

The arrivals in New York from Pará during the past thirty days have been:

	Pará.	Caucho.
September 16.—By the <i>Vigilancia</i> ,	542,400 pounds.	36,000 pounds.
" 18.—By the <i>Justin</i> ,	410,300 pounds.	16,200 pounds.
" 30.—By the <i>Origen</i> ,	386,100 pounds.	45,100 pounds.
" 30.—By the <i>Advance</i> ,	389,500 pounds.	200 pounds.
October 8.—By the <i>Coareuse</i> ,	487,900 pounds.	3,300 pounds.
Total	2,215,800 pounds.	100,800 pounds.

On passage there are: October 4, *Finance*, 150 tons; October 6, *Ambrose*, 440 tons, and for Europe there is one vessel with 370 tons Pará and 40 tons Caucho.

The report on the market for rubber paper by Messrs. Simpson & Beers, of New York, is that there is a limited demand at 6 and 7 per cent. from out of town banks. The supply is expected to increase in view of the increased activity in the rubber market, but as yet there are no signs of interest taken by city banks.

The statistical position of Pará rubber in New York is thus reported for September, 1891, as compared with the same month in previous years:

Statistics of Pará Rubber.			
Stock of Pará here August 31,	about	1,780,000 lbs.	
Receipts " " September	"	2,986,000 lbs.	
Deliveries " " "	"	3,148,000 lbs.	
Stock " " September 30, 1891,	"	1,600,000 lbs.	
Stock " " " 1890,	"	850,000 lbs.	
Stock " " " 1889,	"	775,000 lbs.	

Prices for September.							
	1891.		1890.		1889.		
	Fine.	Coarse.	Fine.	Coarse.	Fine.	Coarse.	
First.....	62	42	96	68	62	39	
Highest.....	64½	55	97	68	67½	43½	
Lowest.....	61	39	90	64	62	39	
Last.....	64½	44½	90	64	67½	43½	

Unequaled results in Steam Production.

THE HAZELTON BOILER

THREE REGISTERED

THE HAZELTON BOILER

THE PORCUPINE BOILER

TRADE MARKS

All Genuine Hazelton or Porcupine Boilers

BEWARE OF IMITATIONS

THE HANDIEST, SAFEST & MOST ECONOMICAL BOILER.

THE HIGHEST STANDARD OF EXCELLENCE.

The Hazelton Boiler Co.

MANUFACTURERS AND SOLE PROPRIETORS

General Office—No. 716 East 13th Street.

Works—Ave D. and 13th Street.

NEW YORK, U.S.A.

SEND FOR ILLUSTRATED DESCRIPTIVE CATALOGUE.



Send for our references in the Rubber Industry.

Mention the India Rubber World when you write.

Business in the main is very good, orders for all kinds of boots and shoes continue to be received freely, and there is great difficulty on the part of manufacturers in meeting the urgent requests of jobbers who are anxious to meet the wants of their trade. Telegrams come freely urging haste, and letters containing orders remain unanswered. Some factories are weeks behind on orders, and the statement that one factory could not catch up until March is probably an exaggeration, but it illustrates the demand.

In mechanical goods a great business has been done, especially in belting. Elevators in the West have ordered without stint and manufacturers are very urgent. Packing is in good request. The season for garden hose is now over, but a large demand has sprung up for steam hose in view of railway requirements. Druggists' sundries are in good request, coming from hitherto unknown places, so far as this trade is concerned, a great trade has been done during the season in tourists and yachting specialties, but the season is now over.

In clothing an excellent business was done, but the demand has largely fallen off, on account of the unexceptionable fine weather. So soon as the weather shall become more seasonable a revival of the demand is expected.

The latest New York quotations are:

Para, fine, new.....	66-67	Tongues.....	36-40
Para, fine, old.....	70-72	Sierra Leone.....	29-45
Para, coarse, new.....	47-48	Benguela.....	47-48
Para, coarse, old.....	40-51	Congo Ball.....	—
Caucho (Peruvian) strip.....	43-44	Small Ball.....	—
Caucho (Peruvian) ball.....	53-55	Flake, Lump and Ord.....	23-27
Mangabeira, sheet.....	40-41	Mozambique, red ball.....	—
Esmeralda, sausage.....	40-50	Mozambique, white ball.....	52-56
Guayaquil, strip.....	38-42	Madagascar, pinky.....	40-44
Virgin Scrap.....	—	Madagascar, black.....	30-46
Carthagenia, strip.....	—	Borneo.....	—
Nicaragua, scrap.....	46-47	Gutta percha, fine grade.....	140-150
Nicaragua, sheet.....	44-45	Gutta percha, medium.....	100
Guatemala, sheet.....	38-40	Gutta percha, hard white.....	100
Thimbles.....	43-44	Gutta percha, lower sorts.....	60-88

The world's stock of Pará rubber October 1 was 3324 tons against 3540 tons September 1, 1891. Of this England held 676 tons against 447 a year ago, United States 740 tons against 388 tons, and at Pará 765 tons. On that date there were afloat for the United States 640 tons, and for England 323 tons. Deliveries for the month were 1780 tons.

English advices state that the stocks of Pará in first hands on September 1, were 479 tons in Liverpool against 299 tons one year ago, and 599 tons one year ago. Of Ceará there were sales of only 88 packages during the month, and Mangabeira 10 tons. Peruvian was more active, and of African there was a good demand with a stock remaining of 668 tons. Quotations

of Africans were:

Gambia, 1s. 6d. to 2s. 3d.
Sierra Leone, 0s. 9½d. to 1s. 9d.
Thimbles, 1s. 7½d. to 1s. 8d.
Accra, 0s. 11½d. to 1s. 9½d.
Flakes, 1s. 0d.
Liberian, 1s. 0d. to 1s. 3d.

During a day or two past the snow storms in the Northwest have caused an active demand for heavy goods, which the jobbers are practically without, and they must be made up.

Cables from Pará report the price of Islands at 3500 milreis for fine and 2450 for coarse. The receipts so far at Pará this month have been 500 tons, which is no more than normal.

Rubber-Goods Exports From New York.

THE declared value of exports from New York during the five week ending September 29, 1891, under the general heading "India Rubber Goods," according to the Collector of the Port, was as follows:

To—	Packages.	Value.	To—	Packages.	Value.
Amsterdam.....	1	\$85	French West Indies.....	1	7
Antwerp.....	14	3,220	Gijon.....	1	20
Argentina.....	1	50	Hamburg.....	16	936
Australia.....	3	104	Havre.....	66	6,321
Berlin.....	5	523	Hayti.....	5	69
Brazil.....	17	2,032	Hong Kong.....	4	146
Bremen.....	58	6,114	Hull.....	11	172
British Africa.....	1	20	Japan.....	8	660
British Honduras.....	2	94	Liverpool.....	9	2,403
British West Indies.....	9	301	London.....	26	1,599
Budweis.....	1	86	Mexico.....	58	4,277
Central America.....	24	2,514	Peru.....	4	325
China.....	3	196	Porto Rico.....	11	134
Christiana.....	3	268	Rotterdam.....	50	710
Colombia.....	18	1,166	San Domingo.....	6	248
Copenhagen.....	8	636	St. Gall.....	26	831
Cuba.....	22	1,230	Venezuela.....	19	370
Danish West Indies.....	1	7	Vienna.....	9	1,134
Dutch West Indies.....	8	108			
Ecuador.....	5	118	Total.....	533	\$30,308

The amount of crude India-rubber exported during the same time from the port of New York is thus stated:

To—	Packages.	Value.	To—	Packages.	Value.
Cuba.....	9	\$350	Liverpool.....	42	1,143
Hamburg.....	43	6,162	London.....	3	290
Havre.....	20	904			
Hull.....	215	70,000	Total.....	432	\$78,349

India-rubber scrap was exported to the value of \$3703, including \$2743 to Glasgow; India-rubber thread to the value of \$2682, and India-rubber waste to the value of \$650, the latter going to Havre. It may be mentioned that among exports of goods containing more or less rubber were electrical materials amounting to \$76,979; wringers valued at \$6346 and druggists' sundries valued at \$771.

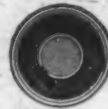
PERDRIAU & Co.,
Rubber * Merchants,
270 George Street,
SYDNEY, N. S. WALES, AUSTRALIA.

We are buyers of every description of RUBBER, ASBESTOS, FIBRE, CELLULOID, OILED CLOTHING, ETC., and are open to quotations with samples.

MONEY CAN BE MADE Manufacturing Rubber Stamps. Send for price of Outfits to J. F. W. DORMAN & CO., 217 East German Street, Baltimore, Md., U. S. A.

Mention the India Rubber World when you write.

The "CLARK" WIRE



INSULATION GUARANTEED WHEREVER USED, AERIAL, UNDERGROUND OR SUBMARINE.

In a letter from the Inspector of the Boston Fire Underwriters' Union, under date of March 29, 1886, he says:—

"A THOROUGHLY RELIABLE AND DESIRABLE WIRE IN EVERY RESPECT."

THE rubber used in insulating our wires and cables is especially chemically prepared, and is GUARANTEED TO BE WATERPROOF, and WILL NOT DETERIORATE, OXIDIZE or CRACK, and will remain flexible in extreme cold weather, and is not affected by heat. The insulation is protected from mechanical injury by one or more braids, and the whole slicked with Clark's Patent Compound, which is water, oil, acid, and to a very great extent fire-proof. OUR INSULATION WILL PROVE DURABLE WHEN ALL OTHERS FAIL. We are prepared to furnish Single Wires of all gauges and diameter of insulation for Telegraph and Electric Lights from stock. Cables made to order. We are now prepared to furnish our Clark Wire with a WHITE OUTSIDE FINISH for ceiling cleat work as well as our standard color.

CLARK JOINT GUM should be used for making water-proof joints. This is put up in half-pound boxes, in strips about one foot long and five-eighths inch wide, and when wrapped about a joint, and pressed firmly makes a solid mass.

FOR RAILWAY AND MOTOR use, we make all sizes of stranded and flexible cables with Clark insulation. Wire Tables and price list will be furnished on application to

HENRY A. CLARK, Treasurer and General Manager.
HENRY H. EUSTIS, President and Electrician.

EASTERN ELECTRIC CABLE COMPANY,

61 to 65 Hampshire Street, Boston, Mass.

Mention the India Rubber World when you write.

GEO. M. AYRES.

GEO. E. AUSTIN.

DUPLUX RUBBER CO.

46 Cortlandt Street, New York.

P. O. Box 1698.

MANUFACTURERS OF

Rubber Belting, Hose and Packing

OF THE HIGHEST GRADES.

MECHANICAL RUBBER GOODS OF EVERY DESCRIPTION.

Mention the India Rubber World when you write.

To Manufacturers of Specialties and Novelties

We solicit correspondence with Manufacturers of specialties and Novelties with a view of handling their goods in the West.

F. O. RHOADS & CO.,

Mfrs' Agents and Wholesale Dealers in Specialties,
400 East 12th St., Kansas City, Mo.

SULPHUR

BROOKLYN SULPHUR WORKS,
Manufacturers of
Double Refined and Sublimed
FLOUR SULPHUR
Especially adapted to the use of
RUBBER MANUFACTURERS.
BATTELLE & RENWICK,
163 Front St., New York.

Mention the India Rubber World when you write.

Free Want Department.

WANTED—A man as foreman, who has had charge of running gossamer machines. Address, stating experience, S. M. G., care of INDIA RUBBER WORLD. (Oct.)

WANTED—Partnership or position as superintendent to reclaim old rubber boots, shoes, rubber scraps and clippings. Have been superintendent nearly 12 years, 4 years for the Philadelphia Rubber Works, 4 years for the Gutta Percha and Rubber Mfg. Co., and 16 months for the New Jersey Rubber Co. Having designed and built plants. Thoroughly understand all branches of the business, and have a new acid process which is cheaper than the present process. Address, JOHN DEAKIN, Lambertville, New Jersey. (Oct.)

WANTED—A man with experience in rubber business (especially druggists' sundries), and capital of from \$2500 to \$5000 to associate himself with a thorough going business man in a good general wholesale and retail rubber business already established in one of the most promising cities west of the Mississippi River. Address, S. A. W., care INDIA RUBBER WORLD. (Oct.)

WANTED—Man who understands compounding hard rubber, and can take charge of grinders and calenders. Factory near New York City. Address, "Combs," care INDIA RUBBER WORLD. (Oct.)

WANTED—A position as superintendent by a man with fifteen years experience in making all kinds of rubber clothing, carriage cloth, hospital sheeting, valves, springs, tubing, wringer rolls and bicycle tires. Fully understands all kinds of shoddy rubber. Address, BOSTON, INDIA RUBBER WORLD. (Oct.)

FOR SALE—I have a patent on a Rubber Chain Tip, which I would like to sell, not having time to see it worked to its full limits. It is not as yet placed on the market, hence would sell at a sacrifice. Address, K. L. J., Office of INDIA RUBBER WORLD.

WANTED—To purchase scrap hard rubber. Please state quantity, quality and price. Address "SCRAP," INDIA RUBBER WORLD Office.

WANTED—A first-class man in rubber mills in New York City, to superintend the manufacture of hard and soft rubber goods. Address, stating experience and salary wanted, BOX 51, INDIA RUBBER WORLD.

WANTED—A first-class man on all kinds of hand work in making-up rooms in rubber factory making general mechanical goods. Address RUBBER, P. O. BOX 515, N. Y. City.

A MECHANICAL RUBBER SALESMAN with a good trade wishes to make a change. Address D. A., INDIA RUBBER WORLD.

RUBBER MACHINERY FOR SALE; mills, cracker, vulcanizer, 5 ft. by 12 ft., boiler 3 ft. by 12 ft., bolters, pumps, platform scales, &c. Address Box 574, Trenton, N. J.

WANTED—A first-class man as foreman in the mackintosh department of a long established concern. Must be thoroughly conversant with the whole business and able to superintend a large force of makers. State salary wanted. Best of references required. Address H. H. H., INDIA RUBBER WORLD OFFICE.

WANTED—Foreman for hard rubber department, who is energetic and progressive, and thoroughly understands the business. Good salary for the right man. Address "Manufacturer," care INDIA RUBBER WORLD.

WANTED—Salesmen for South West, North West and Eastern States to carry a line of rubber clothing, oil clothing, gossamer and mackintosh clothing on commission. A good man can make \$25.00 to \$75.00 per week. Address giving reference, Smith, INDIA RUBBER WORLD.

WANTED—A man who thoroughly understands the manufacture of Oil Clothing, to take full charge of a factory on the Pacific Coast. Address, M. INDIA RUBBER WORLD Office.

WANTED—By a first-class firm an experienced reliable salesman on Mechanical Rubber Goods, for New York and vicinity. Address RUBBER, INDIA RUBBER WORLD.

A YOUNG MAN who has had ten years' experience as salesman on the road desires a position as salesman in some first-class store or on the road. Best of references. Address, Fash, INDIA RUBBER WORLD.

WANTED—An experienced travelling salesman for a rubber manufactory of druggists' sundries. Address S. F., INDIA RUBBER WORLD. (Sept.)

SALESMAN—With established trade in mechanical rubber goods, desires to make a change. First-class references. Address A1, INDIA RUBBER WORLD. (Sept.)

WANTED—By a man thoroughly posted in the manufacture of rubber boots and shoes, etc., a position as foreman of mixing and calendering—is capable of making the varnish, etc. Best of references as to ability and success in the past. Address WILL., INDIA RUBBER WORLD. (Sept.)

AN EXPERIENCED RUBBER RECLAIMER who thoroughly understands the chemical process desires a position. Address "RECLAIMER," INDIA RUBBER WORLD. (Sept.)

MACHINERY WANTED—A rubber press 40x40, one 20x20 and one small rubber grinder-plain. Address, stating prices, JNO. D. CARSON, 53 Hart Ave., Trenton, N. J. (Sept.)

WANTED—A first-class salesman for a house carrying a general line of rubber and oil clothing, and boots and shoes. Address, stating previous experience and former route of travel, C. C., INDIA RUBBER WORLD Office.

